B Final Section 4(f) Evaluation

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SR 502 CORRIDOR WIDENING

IMPROVING SAFETY • INCREASING CAPACITY • REDUCING CONGESTION

I-5 TO BATTLE GROUND

Final Section 4(f) Evaluation

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This Project is also referred to as
"SR 502/I-5 to Battle Ground – Add Lanes".

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Table of Contents

List of Exhibits

1 Introduction to requirements and purpose for evaluation

1.1 What is Section 4(f)?

Section 4(f) of the Department of Transportation Act of 1966 (referred to simply as "Section 4(f)") stipulates that US Department of Transportation (USDOT) agencies cannot approve a transportation program or project requiring the use of Section 4(f) property unless the following conditions apply:

- The transportation program or project will not have more than a *de minimis* impact on the area; or
- There is no feasible and prudent alternative to the using the property; and
- The transportation program or project includes all possible planning to minimize harm to the property resulting from such use.

If a feasible and prudent avoidance alternative exists, it must be selected. If such an alternative does not exist, then a Section 4(f) Evaluation must be prepared to verify the lack of a feasible and prudent avoidance alternative, identify the alternative that causes the least harm in light of the Section 4(f) statute's preservation purpose, and demonstrate that the least harm alternative includes "all possible planning" to minimize harm to the Section 4(f) property.

A Section 4(f) evaluation must identify all Section 4(f) properties in the study area for the project. For those Section 4(f) properties that the project causes impacts to, the evaluation includes a description of the Section 4(f) properties, a description of the uses of those properties, and identification and evaluation of potential avoidance alternatives, and measures to minimize harm resulting from unavoidable uses of Section 4(f) properties.

1.1.1 Legislation Establishing Section 4(f)

Section 4(f) refers to a section of the US Department of Transportation Act of 1966 was subsequently codified in Title 49 United States Code (USC) as 49 USC 1651(b)(2) and 49 USC 1653(f). A similar provision was also adopted in 23 USC 138, which applies only to the Federal-Aid Highway Program. In 1983, the original statute was recodified without substantive change as 49 USC 303; both statutes are commonly referred to as Section 4(f).

Since 1966, Section 4(f) has undergone several changes, most recently in 2005 under the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU), when the statute was revised to clarify and simplify its regulatory requirements, in part by adding the *de minimis* impact provisions mentioned above. The USDOT adopted a final rule for implementing the revised law in the Code of Federal Regulations (CFR) at 23 CFR 774 on March 12, 2008.

DEFINITION

WHAT IS SECTION 4(f) PROPERTY?

Section 4(f) property refers to land that is subject to Section 4(f). This includes:

- Publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or
- An historic site of national, state, or local significance that is included in or is eligible for inclusion in the National Register of Historic Places (23 CFR 774.17).

DEFINITION

WHAT IS A FEASIBLE AND PRUDENT AVOIDANCE ALTERNATIVE?

A feasible and prudent avoidance alternative is one that avoids use of Section 4(f) property and does not cause other severe problems of a magnitude that substantially outweighs the importance of protecting the Section 4(f) property.

An alternative is not "feasible" if it cannot be built as a matter of sound engineering judgment.

An alternative is not prudent if it does not meet the stated purpose and need of the project; it results in unacceptable safety or operational problems; it causes severe social, economic, or environmental impacts; it results in additional costs of an extraordinary magnitude; it causes other unique problems; or it involves multiple factors specified above that cumulatively cause impacts of extraordinary magnitude.

The full definition can be found in 23 CFR 774.17.

DEFINITION

WHAT IS ALL POSSIBLE PLANNING?

All possible planning means that all reasonable measures identified in the Section 4(f) evaluation to minimize harm or mitigate for adverse impacts and effects must be included in the project.

The full definition can be found in 23 CFR 774.17.

1.2 How does Section 4(f) apply to this project?

The Federal Highway Administration is the National Environmental Policy Act co-lead agency for the SR 502 Corridor Widening Project, along with Washington State Department of Transportation. The project is eligible for federal-aid highway funds, so it is subject to Section 4(f).

The SR 502 Corridor Widening Project is located west of Battle Ground in north Clark County, Washington. As illustrated in Exhibit 1, the project extends from NE 15th Avenue (approximately 1 mile east of I-5) to NE 102nd Avenue, where city street improvements begin.

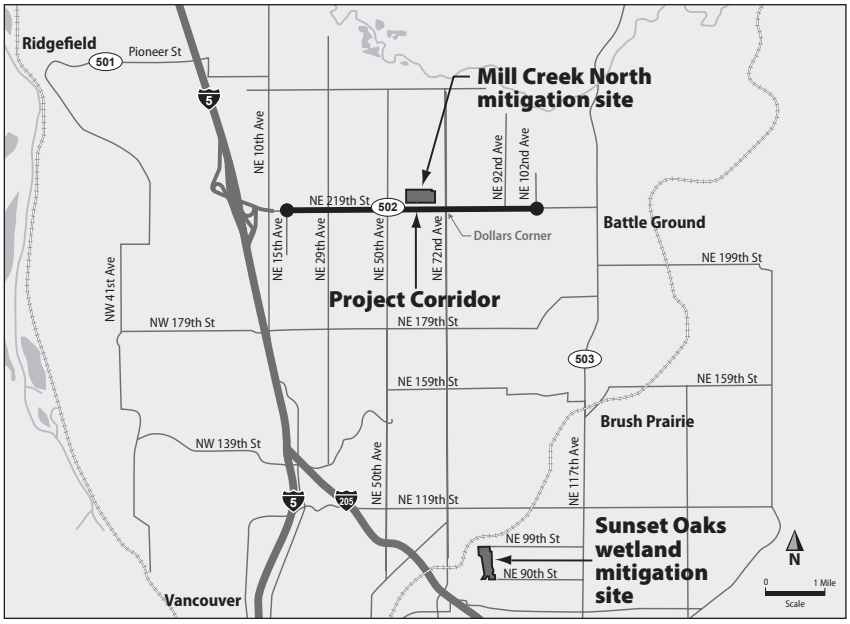

Exhibit 1: Project vicinity map

The Section 4(f) study area, shown in Exhibit 2, encompasses all of the alternatives examined for SR 502 Corridor Widening Project. There are six historic properties in the study area that are considered Section 4(f) property because they are eligible for listing on the National Register of Historic Places.

DEFINITION

NATIONAL REGISTER OF HISTORIC PLACES EVALUATION CRITERIA:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- **A** that are associated with events that have made a significant contribution to the broad patterns of our history; or
- **B** that are associated with the lives of persons significant in our past; or
- **C** that embody distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- **D** that have yielded, or may be likely to yield, information important in prehistory or history.

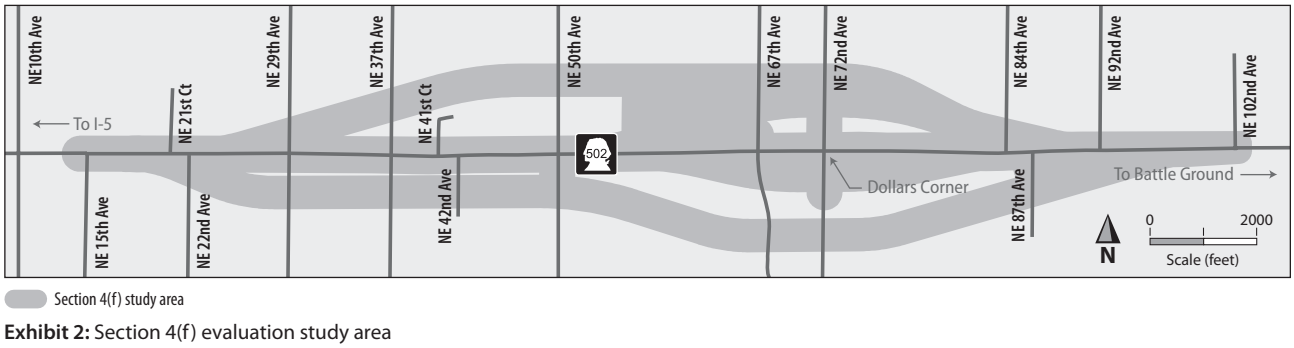

Exhibit 2: Section 4(f) evaluation study area

1.3 What constitutes a use of Section 4(f) property?

In accordance with 23 CFR 774.17 (2008), use of Section 4(f) properties occurs when:

- Land is permanently incorporated into a transportation facility (in other words, the land is acquired to accommodate proposed improvements);
- There is a temporary occupancy of land that is adverse in terms of the statute's preservation purposes; or
- Proximity effects are so severe that the protected activities, features, or attributes that qualify a property for protection under Section 4(f) are substantially impaired or diminished (commonly referred to as a "constructive use").

1.4 When does a use of Section 4(f) property have a *de minimis* impact?

For historic sites, a *de minimis* impact means that the Federal Highway Administration has determined, in accordance with 36 CFR part 800 (The Advisory Council on Historic Preservation's regulation for implementing Section 106 of the National Historic Preservation Act) that no historic property is affected by the project or that the project will have "no adverse effect" on the historic property in question.

1.5 What is the purpose of the final Section 4(f) evaluation?

The purpose of this final Section 4(f) evaluation is to:

- Identify the Section 4(f) properties within the study area;
- Indicate whether the project alternatives would require a use of any Section 4(f) properties;
- Describe any impacts to Section 4(f) property that the project may have as a result of such use;
- Examine avoidance alternatives and determine if any are feasible and prudent; and
- If no avoidance alternatives are feasible and prudent, then identify the alternative that will cause the least overall harm to Section 4(f) property and demonstrate that this alternative includes all possible planning to minimize harm to Section 4(f) property.

KEY POINT

METHODS USED IN THIS EVALUATION

A study area was established for this evaluation as shown in Exhibit 2. The study area was defined as a 650 foot corridor centered on the alignment of each of the alternatives. Information on Section 4(f) properties in the study area was drawn from the *Cultural Resource Survey for the SR 502 Corridor Widening Project, Clark County.* In addition, information on potential Section 4(f) property around the off-corridor alternatives, was gathered through research of Clark County tax records and a field reconnaissance. Maps and local agency plans were reviewed to determine if there were any existing or planned parks, recreation areas, or wildlife sanctuaries in the study area. Maps of the alternatives were overlaid with the identified Section 4(f) properties to evaluate impacts.

2 Description of the Proposed Action

2.1 What is the purpose of the project and why is it needed?

SR 502 serves as one of two primary access routes from Battle Ground and north Clark County to the regional highway system (I-5) and the Portland–Vancouver metropolitan area. As Clark County's population has dramatically grown over the last decade, automobile traffic has

increased, leading to an increase in traffic congestion on SR 502. The rate of collisions on SR 502 in the project corridor (as shown in Exhibit 1) also has increased steadily over the past several years.

Continued population growth in Battle Ground and the surrounding areas is expected to substantially increase traffic on the corridor in the future. Therefore, the need for the project is to reduce collision rates and decrease congestion on SR 502. By 2033, traffic volume is projected to triple in number without the project; and travel times within the corridor could triple or quadruple compared to today.

Washington State Department of Transportation developed a range of initial alternatives for improving safety and mobility on SR 502 between I-5 and Battle Ground, Washington. These included roadway expansion concepts to make improvements directly to the existing SR 502 corridor, which follows NE 219th Street; building a new roadway segment running either to the north or south of the current alignment; making capacity improvements to the existing roadway; and substantially expanding transit along the corridor. These alternatives were developed through a process that included the public's input at open house meetings from February 2007 through May 2008. The Proposed Action is a result of combining the best characteristics of the five on-corridor alternatives and the Transportation System Management/Transportation Demand Management Alternative to address the project's purpose and need, meet design standards, address public concerns, and minimize effects to properties and environmentally sensitive areas.

Additional information on the purpose and need for the project can be found in Chapter 1, *Introduction to the Project* of the final environmental impact statement, and additional detail on the project's history can be found in Chapter 2, *Developing the Alternatives*.

2.2 What is the Proposed Action?

The Proposed Action would widen and make additional improvements to the existing SR 502 as shown in Exhibit 3.

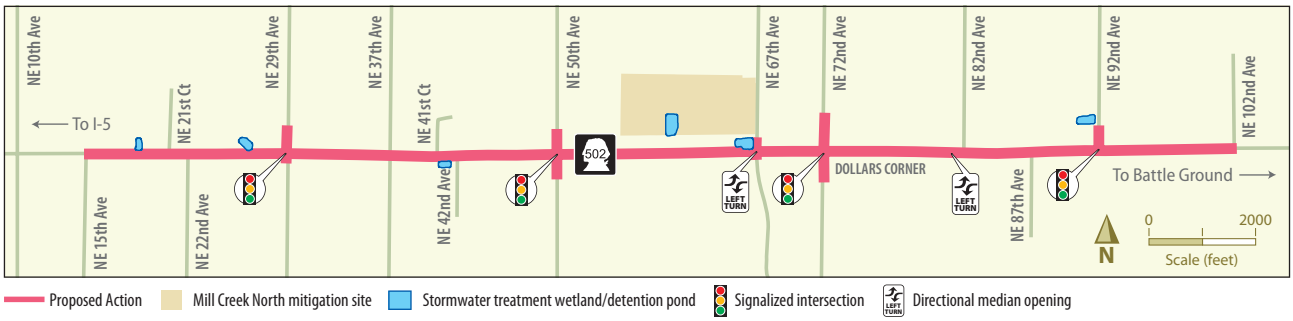

Exhibit 3: Extent of Proposed Action (Pink Alternative)

Signals would be added at three intersections (NE 29th Avenue, NE 50th Avenue, and NE 92nd Avenue), and the existing signalized intersection at NE 72nd Avenue would be improved. SR 502 would be a limited access facility with fewer driveway connections than currently exist today. A median treatment, such as a barrier or curb, would be installed throughout the length of the corridor with breaks at the signalized intersections and two side streets, including a directional median opening at NE 67th Avenue and a directional median opening located between NE 79th Avenue and NE 82nd Avenue (location to be selected in final design). The median treatment would restrict turns to right-in/right-out movements at minor intersections and driveways along the corridor except at the four signalized intersections where u-turns would be allowed and the two directional median breaks where left-turns would be allowed from SR 502. Crosswalks would be installed at signalized intersections.

Under the Proposed Action, two 12-foot travel lanes would be constructed in each direction with a median treatment separating westbound and eastbound travel (Exhibit 4). Ten-foot wide paved shoulders that could be used by pedestrians and bicyclists would be constructed along the north and south side of SR 502 for the entire corridor, and sidewalks would be provided in the rural commercially zoned area near Dollars Corner – located at the intersection of SR 502 and NE 72nd Avenue. The right of way width for the corridor would be approximately 150 feet throughout the corridor.

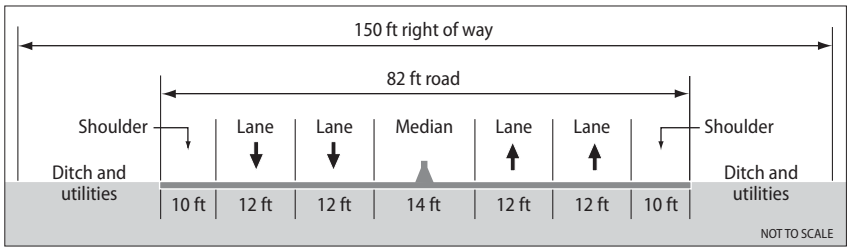

Exhibit 4: Typical right of way cross section of SR 502 under the Proposed Action

The Proposed Action would include a stormwater detention and treatment facility system designed to treat approximately 34 acres of impervious surface. In addition, two mitigation sites have been identified to mitigate wetland, fish habitat, and stream effects associated with the Proposed Action. Sunset Oaks is a 32-acre site located approximately six miles southeast of the project corridor. Washington State Department of Transportation also acquired a 68-acre site adjacent to the project corridor, known as Mill Creek North. Section 8 includes an evaluation of mitigation sites to identify and analyze an avoidance alternative for the Mill Creek North mitigation site, which would impact the J.B. Williams house. Other mitigation sites may be identified as the project progresses. All attempts to avoid impacts to

Section 4(f) resources will be made in locating additional mitigation sites, which will be analyzed for avoidance alternatives, similar to the evaluation provided in Section 8.

The Proposed Action includes minor shifts in alignment to the north and south in order to minimize environmental impacts. There is a Class I forested wetland located west of NE 84th Avenue on the north side of SR 502 for which the road has been shifted south to avoid impacts to the wetland such as filling it or removing vegetation that serves as a buffer around the wetland. This shift results in greater impacts to the Thomas farmstead; however, as explained later in this document, impacts to both the Blair farmstead and the Thomas farmstead cannot be avoided. The road has also been shifted north in the Dollars Corner vicinity to avoid removal of riparian vegetation along Mill Creek, which would result in negative impacts to fish habitat in this fish-bearing stream due to stream channel realignment, increased stream temperatures, increased sedimentation, and increased turbidity.

Measures incorporated in the design of the Proposed Action to avoid, minimize, and mitigate impacts to Section 4(f) properties are discussed later in Sections 5 and 7.

Additional detail on the Proposed Action can be found in Chapter 2, *Developing the Alternatives* of the final environmental impact statement.

2.3 What other alternatives were considered?

Alternatives to the Proposed Action were considered and included:

- Five on-corridor alternatives that would widen and reconfigure the existing SR 502 alignment (NE 219th Street);
- Two off-corridor alternatives that would relocate SR 502 to a new roadway either north or south of the existing alignment;
- A Transportation System Management/Transportation Demand Management Alternative (TSM/TDM) with two different options; and
- A No Build Alternative.

There are a number of components which are common to all of the build alternatives described in Sections 2.3.1 through 2.3.8 below and are the same as the Proposed Action. Under each of the alternatives considered, signals would be added at three intersections (NE 29th Avenue, NE 50th Avenue, and NE 92nd Avenue), and the existing signalized intersection at NE 72nd Avenue would be improved. SR 502 would be a limited access facility with fewer driveway connections than currently exist today. A median treatment would be installed throughout the length of the corridor with breaks at the signalized intersections. The on-corridor alternatives (Yellow, Purple, White, Red/

Brown, and Orange) and the Transportation System Management/ Transportation Demand Management alternative would also include directional median openings at NE 67th Avenue and a side street between NE 79th Avenue and NE 82nd Avenue where left-turns from SR 502 would be allowed to better facilitate travel routes in the Dollars Corner area.

Except for the Transportation System Management/Transportation Demand Management, the cross-section for the on-corridor and off-corridor build alternatives would be the same as that of the Proposed Action, as shown in Exhibit 4. The right of way width for the corridor would be approximately 150 feet throughout the corridor. These alternatives would include a stormwater detention and treatment facility system. The Sunset Oaks and Mill Creek North mitigation sites identified for the Proposed Action would likely be used for any of the on-corridor or off-corridor alternatives considered.

There are also distinct differences between the on-corridor and off-corridor alternatives considered. The off-corridor alternatives would create a completely new facility for SR 502, and the old facility would be transferred to the county. Thus, there would be two facilities: NE 219th Street would provide local circulation while SR 502 would provide a limited access connection between I-5 and Battle Ground. The on-corridor alternatives combine the local circulation function and the connection between I-5 and Battle Ground in a single facility.

Each of the alternatives considered is described and illustrated below.

2.3.1 Yellow On-Corridor Alternative

The Yellow Alternative would hold the existing NE 219th Street southern right of way boundary and would widen the existing right of way (approximately 75 feet wide) to the north to 150 feet. The Yellow Alternative was examined as an option to efficiently widen SR 502 using the existing roadway. This approach maximizes use of the existing roadway, thus minimizing land needed for new right of way, creation of new impervious surface, and environmental impacts.

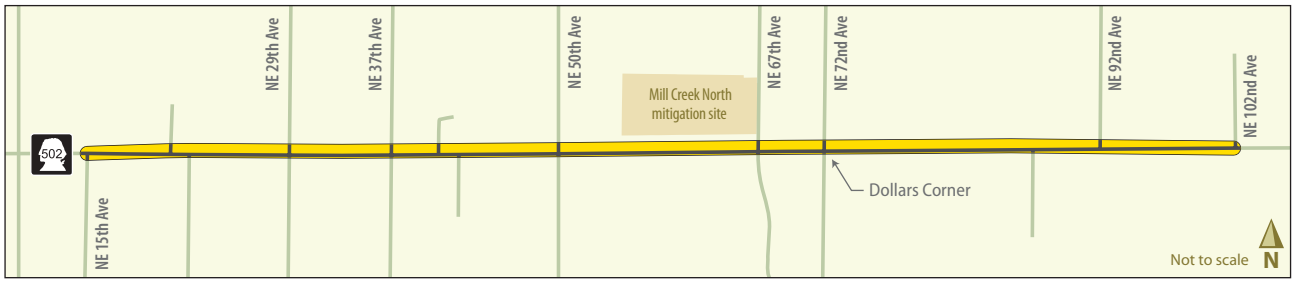

Exhibit 5: Yellow Alternative: widen NE 219th St, hold south right of way line

2.3.2 Purple On-Corridor Alternative

The Purple Alternative would hold the existing NE 219th Street centerline and widen the existing right of way (approximately 75 feet wide) symmetrically to the north and south to 150 feet. The Purple Alternative, like the Yellow Alternative, was examined as a logical and efficient option to expand upon the existing roadway. This approach maximizes use of the existing roadway, thus minimizing land needed for new right of way, creation of new impervious surface, and environmental impacts.

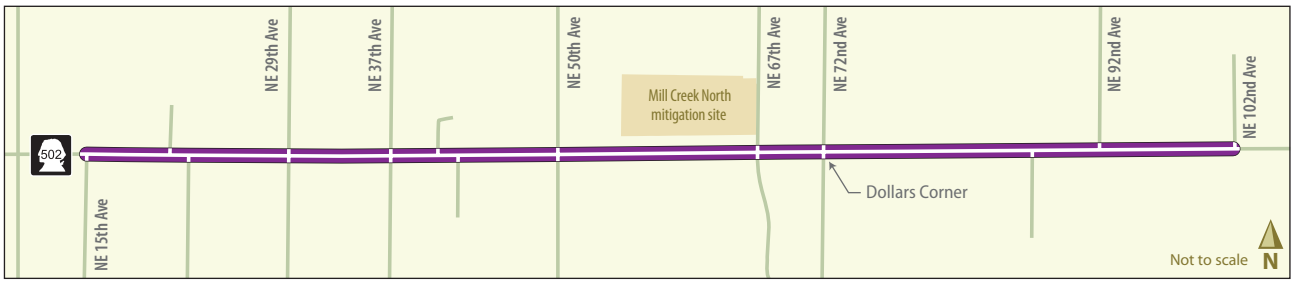

Exhibit 6: Purple Alternative: widen NE 219th St symmetrically

2.3.3 White On-Corridor Alternative

The White Alternative would hold the existing NE 219th Street northern right of way boundary and would widen the existing right of way (approximately 75 feet wide) to the south to 150 feet. The White Alternative, similar to the Yellow and Purple alternatives, was examined as an option to maximize use of the existing roadway, thus minimizing land needed for new right of way, creation of new impervious surface, and environmental impacts.

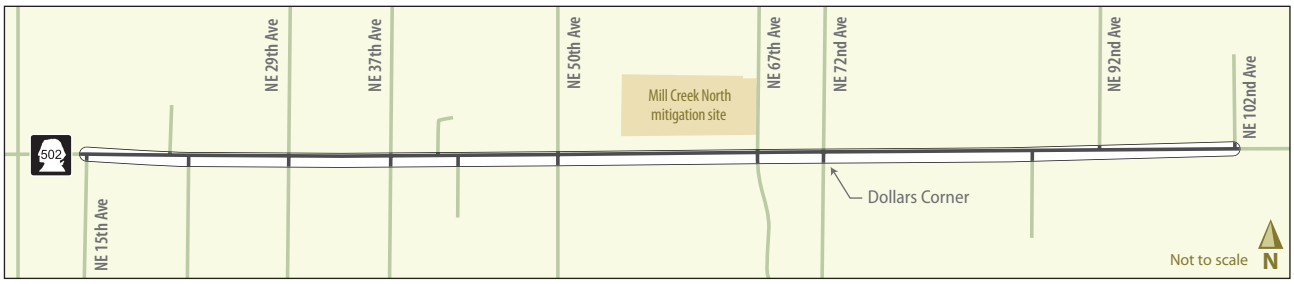

Exhibit 7: White Alternative: widen NE 219th St, hold north right of way line

2.3.4 Red/Brown On-Corridor Alternative

The Red/Brown Alternative would hold the existing NE 219th Street centerline and would widen the existing right of way (approximately 75 feet wide) symmetrically to 150 feet along NE 219th Street except at Dollars Corner, where it would follow a route to the north of the commercial area. This alternative was based on the concept of maximizing use of the existing roadway, but varied from the Yellow, Purple, and White alternatives in that this alternative was designed to avoid business displacements and impacts at the Dollars Corner commercial area by veering north of this intersection.

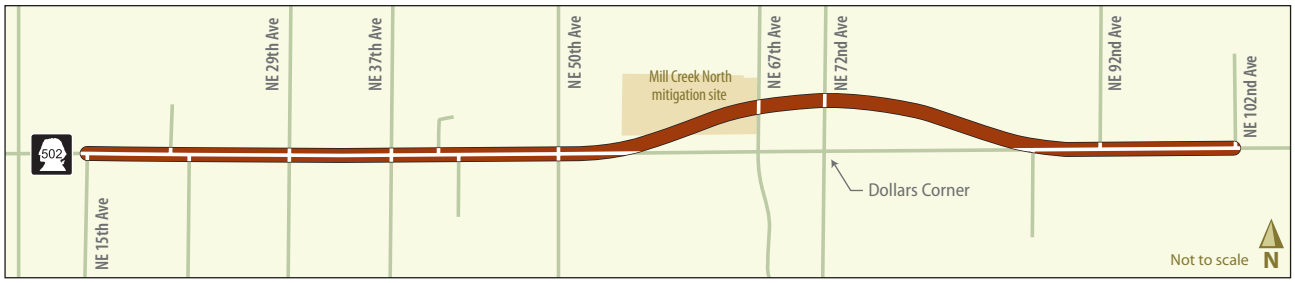

Exhibit 8: Red/Brown Alternative: North Dollars Corner

2.3.5 Orange On-Corridor Alternative

The Orange Alternative would hold the existing NE 219th Street centerline and would widen the existing right of way (approximately 75 feet wide) symmetrically to 150 feet along NE 219th Street except at Dollars Corner, where it would follow a route to the south of the commercial area. Like the Red/Brown Alternative, this alternative was based on the concept of maximizing use of the existing roadway, but varied from the Yellow, Purple, and White alternatives in that this alternative was designed to avoid business displacements and impacts at the Dollars Corner commercial area; however, the Orange Alternative would vary from the Red/Brown Alternative, as it would veer south of Dollars Corner instead of north of the intersection.

Washington State Department of Transportation determined that the Orange Alternative did not meet design standards in the vicinity of Dollars Corner. Under this alternative, the distance between the NE 219th Street/NE 72nd Avenue intersection and the new SR 502 roadway/NE 72nd Avenue intersection to the south would be insufficient to accommodate the necessary storage lengths for left-turns from NE 72nd Avenue west onto NE 219th Street and east onto the new SR 502 roadway. The alignment of the Orange Alternative could not be shifted further south to provide the needed spacing on NE 72nd Avenue because this would have resulted in significantly increased adverse effects to Mill Creek. Therefore, Washington State Department of Transportation determined that this alternative was not feasible to construct, and it is not evaluated further in this final Section 4(f) evaluation.

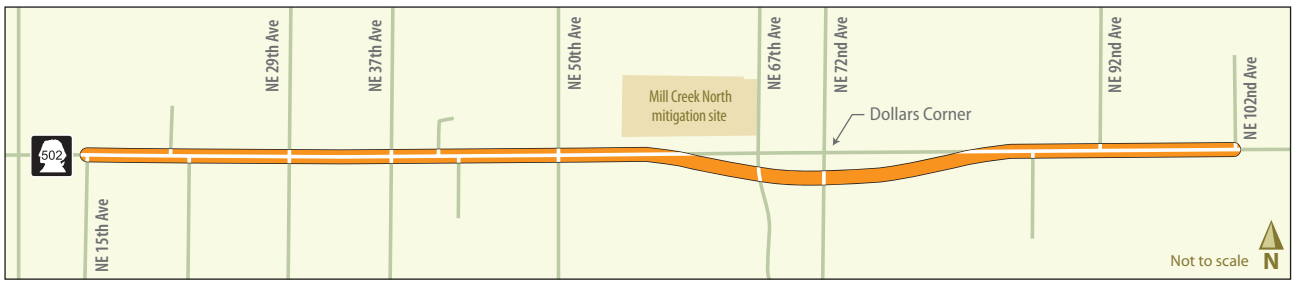

Exhibit 9: Orange Alternative: South Dollars Corner

2.3.6 Blue Off-Corridor Alternative

The Blue Alternative would be a new off-corridor road with a 150-foot right of way running parallel to NE 219th Street to the north. This alternative was developed to provide a facility that would require no changes in access and no displacement of businesses at Dollars Corner by creating an entirely new roadway to the north. Under this alternative, the existing NE 219th Street would be retained as a local road.

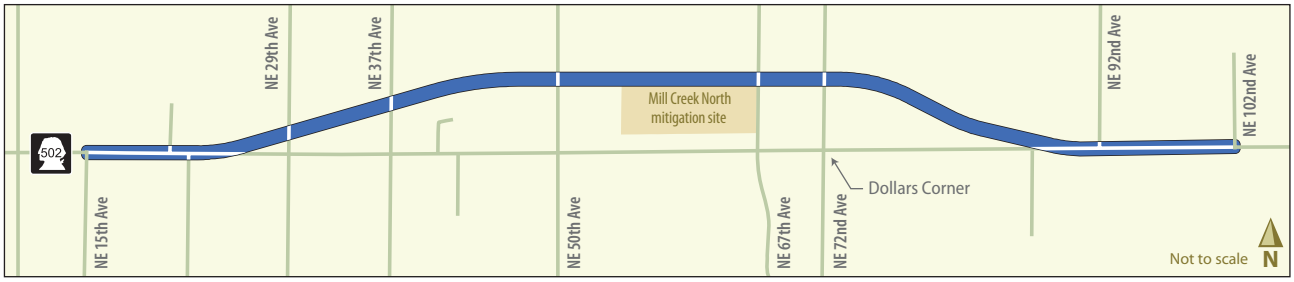

Exhibit 10: Blue Alternative: North off-corridor

2.3.7 Aqua Off-Corridor Alternative

The Aqua Alternative would be a new off-corridor road with a 150-foot right of way running parallel to NE 219th Street to the south. Like the Blue Alternative, this alternative was developed to provide a facility that would require no changes in access and no displacement of businesses at Dollars Corner by creating an entirely new roadway; however, this alternative would place that new roadway to the south of the existing corridor. Under the Aqua Alternative, the existing NE 219th Street would be retained as a local road.

Exhibit 11: Aqua Alternative: South off-corridor

DEFINITION

WHAT IS TRANSPORTATION SYSTEM MANAGEMENT?

Transportation System Management strategies identify options that may add capacity to the existing roadway without adding travel lanes to the corridor. These strategies include signal improvements, intersection lane configuration improvements, and increased transit service.

2.3.8 Transportation System Management/Transportation Demand Management Alternative

The Transportation System Management/Transportation Demand Management (TSM/TDM) Alternative would retain the existing two travel lanes for SR 502 but the roadway would be widened for safety and mobility. Under the first option considered for this alternative, paved roadway shoulders would be provided, and signals with designated eastbound and westbound left-turn lanes would be added at NE 29th Avenue, NE 50th Avenue and NE 92nd Avenue. Additional turn lanes and signal improvements would be provided at NE 72nd Avenue,

and a median treatment would be installed throughout the length of the corridor with breaks at the signalized intersections and two side streets, including a directional median opening at NE 67th Avenue, and a directional median opening located between NE 79th Avenue and NE 82nd Avenue. Improvements in this alternative would be constructed within the existing right of way (approximately 75 feet in width), so no right of way acquisition would be required.

A second option for the Transportation System Management/ Transportation Demand Management Alternative would be the addition of substantially increased transit service along the corridor including local service (the only service now is non-stop, express commuter service) with the addition of bus stops/pullouts within the study area plus the improvements described for the first option above.

The Transportation System Management/Transportation Demand Management Alternative would create some new impervious surface with the widening of the roadway shoulders and the addition of the median treatment; however, it would create less impervious surface than the on-corridor and off-corridor alternatives described earlier, and likely would not need to use the Mill Creek North mitigation site for wetland mitigation.

DEFINITION

WHAT IS TRANSPORTATION DEMAND MANAGEMENT?

Transportation Demand Management strategies identify options that may reduce the demand for additional capacity on the existing roadway without adding travel lanes to the corridor. These strategies include enhanced transit, carpooling, and other travel demand reduction strategies.

2.3.9 No Build Alternative

The No Build Alternative would maintain the current configuration of SR 502 without improvements other than routine maintenance. SR 502 would remain a two-lane roadway with numerous driveway points. The Dollars Corner intersection at SR 502/NE 72nd Avenue would have a traffic signal as it does today, while the other intersections would only have stop signs controlling the side-street movements.

3 Description of Section 4(f) properties

3.1 What types of Section 4(f) property are not affected by the project?

The study area does not include any public park lands, outdoor recreation areas, or wildlife or waterfowl refuges. There are five publicly-owned parcels, but they are not open to the general public or used for recreational purposes.

Nineteen archaeological sites have been identified within the study area. Shovel testing and larger test units were excavated at these sites to assess the potential for buried archaeological materials. One site revealed a high concentration of artifacts that retained integrity, and so this site is recommended as eligible for listing on the National Register of Historic Places under Criterion D, although the portion of the site that contrib-

utes to its eligibility is not within the direct impact area of the project, and the project will have no effect on the archaeological resource. However, Section 4(f) is not applicable to this site per 23 CFR 774.13(b), which states: "Section 4(f) does not apply if FHWA after consultation with the State Historic Preservation Officer and the Advisory Council on Historic Preservation determines that the archaeological resource is important chiefly because of what can be learned by data recovery… and has minimal value for preservation in place." The excavations revealed at the remaining 18 sites lacked integrity due to agricultural disturbance and other development in the area.

3.2 What Section 4(f) properties are affected?

The *Cultural Resource Survey for the SR 502 Corridor Widening Project, Clark County* identified six historic properties as shown on Exhibit 12, which are eligible for listing on the National Register of Historic Places, and thus qualify as Section 4(f) property.

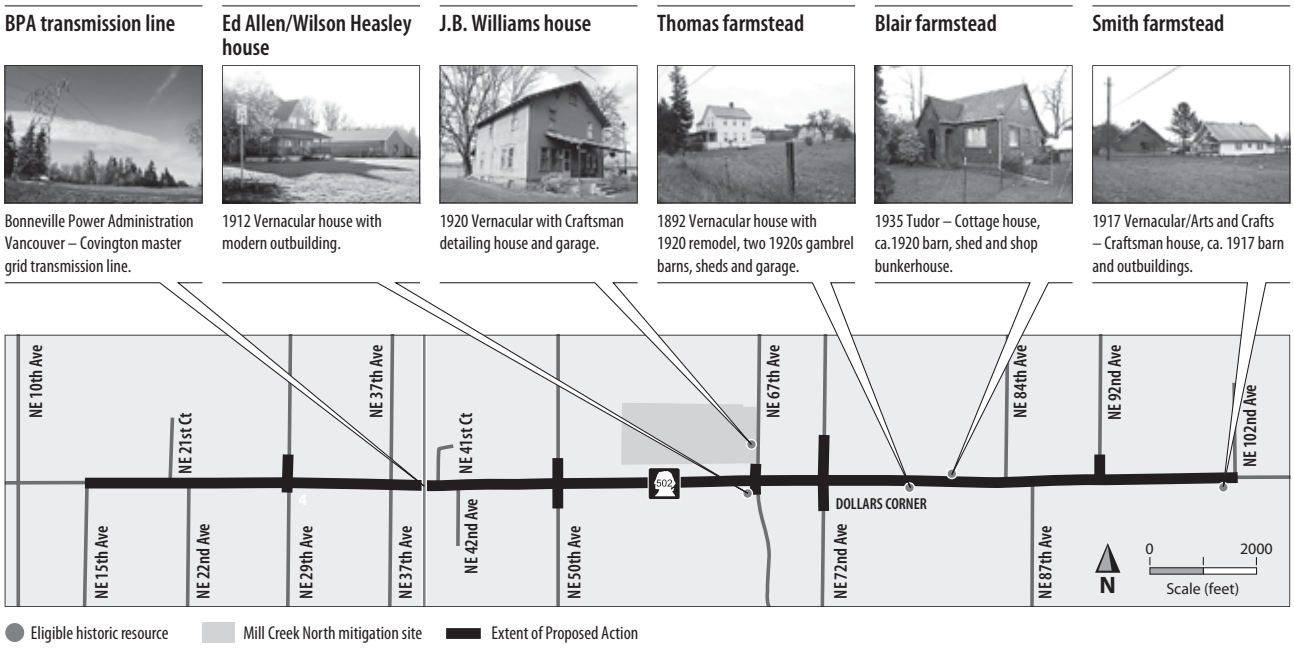

Exhibit 12: Location of Section 4(f) properties

Supplemental research to identify potential Section 4(f) property present near the alignment of the off-corridor alternatives was conducted using tax assessor records. These records identified six farms dating from 1920–1940; however, a field visit revealed that all have been modified and/or architecturally modest, and therefore, none of the sites near the off-corridor alternatives qualify as Section 4(f) property.

Each of the six historic sites that meet the criteria for Section 4(f) property are illustrated and described below. Appendix M, *Historic Resources Inventory Forms* of the final environmental impact statement

includes the inventory forms completed during the cultural resource survey for these six sites.

3.2.1 Bonneville Power Administration Vancouver–Covington transmission line

Transmission lines and towers located within the study area are part of the Bonneville Power Administration master grid constructed between 1939 and 1945 to supply power throughout the Pacific Northwest from Bonneville Dam. The transmission line was constructed in 1939 as part of the original master grid to supply electricity to King County. The first segment of the line constructed in 1939 proceeded as far as Kelso and the final segment reached Covington in 1941, opening the line from Vancouver to Covington.

As shown in Exhibit 14, the transmission line extends across SR 502 between NE 37th Avenue and NE 41st Court, running north to south. The steel tower just north of SR 502 appears to be an original Type A single-circuit suspension tower and would not require relocation under the Proposed Action. This transmission line was evaluated by Bonneville Power Administration in 1987 as part of the Bonneville Power master grid and was recommended to be eligible for listing in the National Register of Historic Places as part of the Bonneville Power Administration Grid Discontiguous District.

From the early stages of the project, assumptions were made that direct impacts to the tower on the north side of SR 502 could be avoided under any alternative. The Proposed Action has been designed to avoid the need to relocate or remove and replace the tower, as illustrated in Exhibit 14. The Proposed

Exhibit 13: The 1939 Bonneville Power Administration Vancouver–Covington Master Grid transmission line

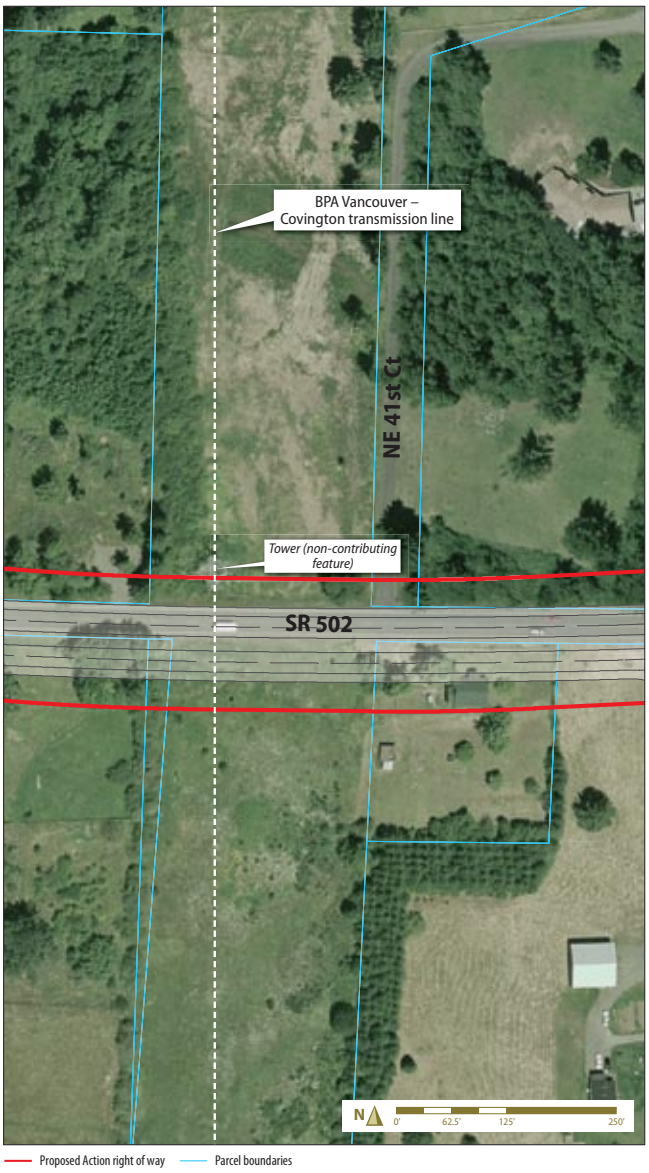

Exhibit 14: The Bonneville Power Administration Vancouver–Covington transmission line and the Proposed Action

Action would have no impact on the Bonneville Power Administration Vancouver–Covington transmission line.

3.2.2 Ed Allen/Wilson Heasley house

The Ed Allen/Wilson Heasley house was constructed in 1912 and is located at the southwest corner of SR 502 and NE 67th Avenue approximately one-quarter mile west of Dollars Corner. The farmhouse's dominant feature is its pyramidal roof with opposing gables topped by a central interior chimney.

Despite modifications to the structure, the overall historic form is recognizable and the modifications are reversible, so it is eligible for listing in the National Register of Historic Places because of its architectural distinction.

Exhibit 15: The 1912 Ed Allen/Wilson Heasley house and a modern outbuilding

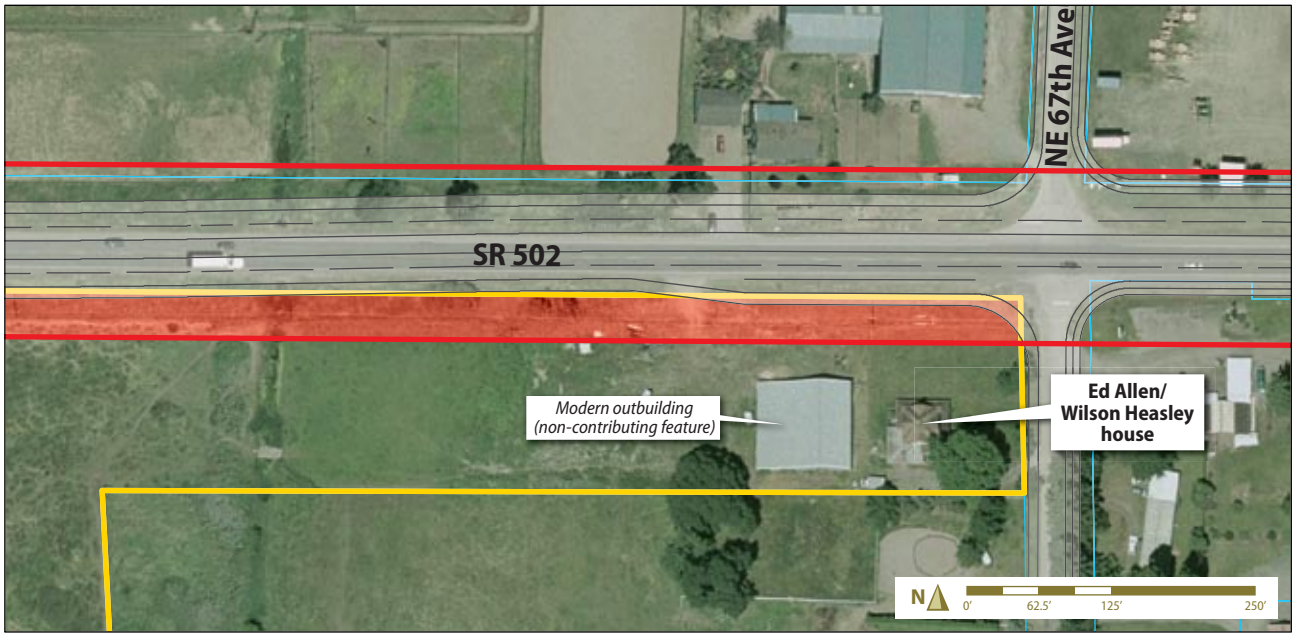

Exhibit 16: The Ed Allen/Wilson Heasley house and the Proposed Action

The house is surrounded by a grass-covered yard and a grove of mature deciduous trees, shading the east and south sides of the house. The house is the only significant feature on this property; the modern metal clad agricultural building located west of the dwelling is not historically significant. The home was once part of a 90-acre farm, but was later subdivided and now sits on a 14-acre parcel. As shown in Exhibit 16, approximately one-half of an acre of the parcel upon which the Ed Allen/Wilson Heasley house is located would be acquired from this parcel under the Proposed Action; however, the Proposed Action would avoid use of this Section 4(f) property as the Proposed Action would not cause impacts to the structure, and the vegetation between the roadway and the structure is not historically significant.

3.2.3 J.B. Williams house

The J.B. Williams house is part of the former 1904 J.B. Williams farmstead. The 1920 Vernacular house exhibits some Craftsman detailing and is located on a 68-acre parcel on the west side of NE 67th Avenue, north of SR 502. The house, circa 1920 garage, and newer (1960s) shop/machine shed remain on the farmstead; other associated farmstead buildings are no longer present, reducing the integrity of the historic farmstead. The house has been identified as a historically significant structure, and the garage, located southwest of the house, is a contributing significant feature.

The house retains historic integrity and conveys its associations with early twentieth-century farming in the Battle Ground vicinity. The house, which is currently uninhabited, is a remnant of an early twentieth-century development formerly associated with the broader rural agricultural community.

Exhibit 17: The 1920 J.B. Williams house

The house is located at the east edge of the former Patterson Swale, a large intermittent marsh. A grouping of mature, deciduous trees lies west of the house along the embankment.

Washington State Department of Transportation acquired the entire J.B. Williams property as a mitigation site (referred to as the Mill Creek North mitigation site). As illustrated in Exhibit 18, this property would be used for the creation and enhancement of wetlands and habitat areas through excavation and planting. Stormwater ponds would also be constructed on this site to treat and detain stormwater from the Proposed Action.

The effects of the Proposed Action require a mitigation site of significant complexity and scale. This property is extremely well suited to meet the requirements for a mitigation site for a variety of reasons, including:

- Standard wetland mitigation protocol requires that the mitigation wetland provide the same overall functions and benefits as the impacted areas. In the Mill Creek North basin, the Proposed Action will cause impacts to a Category 1 riverine wetland occurring in a headwater position, as well as impacts to critical fish habitat for steelhead associated with Mill Creek North. The J.B. Williams property contains the headwaters to the primary branch of Mill Creek North and includes significant opportunities for mitigating the impacts to critical fish habitat, making it a perfect functional match to the impact area.
- The J.B. Williams property provides 27 acres of wetland rehabilitation area (factors in buffer offset requirements) immediately adjacent to the affected wetland and stream, and at least six acres of wetland creation, which meet the mitigation requirements in the Mill Creek watershed for the Proposed Action.
- The Mill Creek North mitigation site allows for mitigation in very close proximity to the impacts, perfectly matching wetland function and landscape position, which is a desired outcome for resource agencies regulating the mitigation. The northern two-thirds of the Mill Creek North basin would not support feasible or successful riverine wetland mitigation of the required scale, as this part of the basin primarily consists of forested upland terraces of the East Fork Lewis River, with Mill Creek flowing through a deep forested ravine. The J.B. Williams property is located within the limited portion of the southern one-third of the basin that could support the required riverine mitigation.
- The J.B. Williams property is a large site that provides greater habitat connectivity benefits than a piece-meal approach of multiple, small

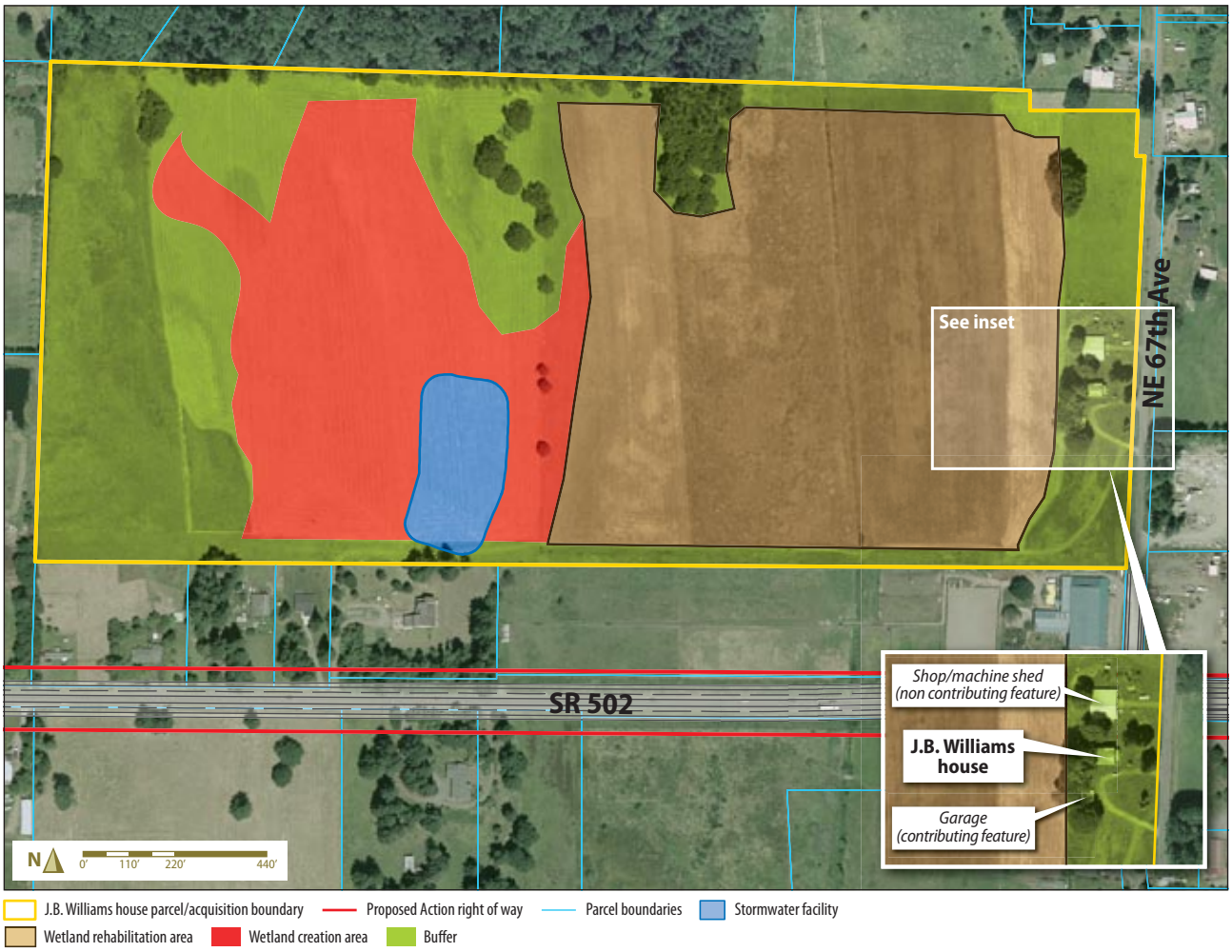

Exhibit 18: The J.B. Williams house and the Proposed Action

sites across the landscape. Suitable rehabilitation sites of this size, providing the opportunity to restore hydrology and hydrologic function to significantly degraded wetland systems, located in the correct landscape/watershed position in the Mill Creek North watershed are extremely limited.

- Except for the J.B. Williams property, the Mill Creek North watershed is zoned R-5 (one house per five acres) and RC-1 (rural center with 1 acre minimum lot sizes), supporting residential, commercial, Christmas trees farms, and commercial timber land uses. Parcels in these zones are smaller than in the R-20 zone, in which the J.B. Williams property is located, and most of the R-5 zone does not include suitable topography for riverine wetland mitigation. It would be very difficult to put together a contiguous group of willing sellers of small parcels that happen to be in the correct landscape position and adjacent to Mill Creek to meet the mitigation requirements.
- Historically, the J.B. Williams property was a large wetland/slough before it was farmed. Construction of the mitigation facility will

restore the site's historic wetland and stream functions to pre-agricultural conditions.

- The US Fish and Wildlife Service and the National Oceanic and Atmospheric Administration support the use of this particular property in order to achieve mitigation goals.
- Mitigation on the J.B. Williams property maximizes watershed benefits by enhancing headwater function/storage and reducing the erosive effect on down stream habitat during storm events. Clark County requires that wetland impacts are mitigated within the same basin where the impacts occurred. In this case, Mill Creek North is part of the East Fork Lewis River basin, but the impacts occur within headwater wetland systems with specific functions. There is very limited opportunity to provide the scale of wetland mitigation needed within headwater areas of this particular basin, and the J.B. Williams property has the significant advantage of allowing Washington State Department of Transportation to replace function and benefit to the impacted sub basin (Mill Creek North).
- The J.B. Williams property provides an opportunity to protect and enhance a mature and intact stand of Oregon White Oak, a globally endangered plant community within the context of a comprehensive, multi-resource mitigation site.
- Wetland mitigation on this site will increase the flood storage capacity, reducing the risk of flooding to homes and businesses in the study area.
- Washington State Department of Transportation only acquires mitigation land from property owners willing to sell, unless it has no alternative. For early mitigation site selection, analysis, and purchase, Washington State Department of Transportation identifies and works with property owners willing to sell. The owner of the J.B. Williams property had the property listed for sale at the time of site identification, indicating a willingness to sell the land, so Washington State Department of Transportation took this opportunity to acquire the property from a willing seller.

Using this property as the mitigation site would likely necessitate removal of the house. Because the purpose and need for the mitigation site is distinct from the purpose and need for the overall project, a separate evaluation for the required mitigation site has been prepared and is included in Section 8.

3.2.4 Thomas farmstead

The Thomas farmstead is a fairly intact 1892–1920s farmstead located on the south side of SR 502 approximately one-quarter mile east of Dollars Corner. Approximately seven acres located in the northern portion of the 57-acre parcel are recognized as the historically significant property that reflects the historic significance and integrity of the farmstead. As shown in Exhibit 19, approximately one-half acre would be acquired under the Proposed Action.

This farm was associated with the Thomas family, a family of German immigrants, and with the local farming industry within the Battle Ground vicinity. This farmstead is a good, intact example of early dairy farming in the region. Census records show that logging and farming were the primary occupations of settlers in the study area – often going

Exhibit 19: The Thomas farmstead and the Proposed Action

hand-in-hand since many of the homesteads were heavily timbered and needed to be cleared before use as farmland. It is possible that one of the early owners of the property viewed the timbered parcels as an investment by selling cut logs and then later leasing or selling the agricultural lands.

The structures on the farmstead consist of a two-story 1892 Gothic Vernacular farmhouse with a 1920s porch entry alteration, two circa 1920 two-story gambrel-roofed barns, a one-story garage, and two one-story sheds. The barns were used for "Dollars Corner Barn Dances" for a time; and a 1964 USGS topographic map shows what appears to be a horse racing track on the eastern half of the property. All of the buildings are contributing features of the historically significant farmstead.

The Proposed Action would require removal of the house on the Thomas farmstead in order to accommodate the widened roadway, resulting in an adverse effect; however mitigation options will include an investigation as to whether the house can be relocated, as discussed in Section 5.3.

Exhibit 20: The 1892 main house (left) and an associated gambrel barn on the Thomas farmstead

3.2.5 Blair farmstead

The Blair farmstead, circa 1920, is located on SR 502 approximately one-half mile east of Dollars Corner on the northwest corner of SR 502 and NE 82nd Avenue. The southern three acres of the five acre parcel represent the historic significance and integrity of the farmstead. As shown in Exhibit 22, approximately one-fifth of an acre would be acquired under the Proposed Action.

This farmstead includes an intact example of a one and one-half story single-family Tudor Cottage constructed of clinker brick, which is locally distinctive in its use of materials. The farm grouping retains integrity of setting maintaining many of the agricultural outbuildings including a three-story gambrel roof barn, a one-story shed, and a one-story cottage/shop adjacent to the main residence, which was used as

Exhibit 21: The Blair farmstead main residence (c. 1920)

Exhibit 22: The Blair farmstead and the Proposed Action

a mechanical shop with rooms for farmhands. All of the structures are contributing features of the historically significant farm grouping.

This farm is associated with the dairy industry that flourished in northern Clark County during the first half of the twentieth century

and became a major industry in the vicinity of Battle Ground. Cattle were grazed in meadow clearings before settlers even cleared timber in order to establish farmlands. As farmers' herds began producing more milk than their families could use, they sought markets for their dairy products. Battle Ground's first cheese factory was established in 1903, and a number of cooperative dairy associations were formed in the 1920s and later merged into the Clark County Dairyman's Association in 1942. By 1955, approximately 485 farms containing 9,000 head of cattle were located between Battle Ground and Vancouver with more than one-third of these being dairy cattle.

With the incorporation of all possible planning measures as described in Section 5.1.5, the Federal Highway Administration has determined and the Washington State Department of Archaeological and Historic Preservation has concurred that the Proposed Action would result in No Adverse Effect to the Blair Farmstead under Section 106. This would result in a Section 4(f) *de minimis* impact to the Blair Farmstead due to the removal of vegetation adjacent to the roadway.

3.2.6 Smith farmstead

The Smith farmstead is located at the southwest corner of SR 502 and NE 102nd Avenue. The parcel is 43 acres in size, and approximately one acre of the northern portion represents the historically significant farmstead. As shown in Exhibit 24, approximately one-half acre would be acquired under the Proposed Action. The original land patent for this Section 4(f) property was a homestead entry filed by a Swedish immigrant in 1876. Similar to the Blair farmstead, the Smith farmstead is associated with farming and dairy ranching in northern Clark County during the late nineteenth and early twentieth centuries.

Exhibit 23: The 1917 main house (right) and the c. 1920 Dutch dairy barn (left) of the Smith farmstead

The farmstead consists of a one and one-half story Vernacular Craftsman-style single family house constructed in 1917, a detached garage, a one and one-half story Dutch dairy barn, and two additional outbuildings. The house is a historically significant feature and the barn and outbuildings are contributing significant features of the farmstead; the garage is not a contributing significant feature.

As shown in Exhibit 24, the Proposed Action right of way boundary has been narrowed to avoid use of this Section 4(f) property. This design modification occurred during the design refinement between the draft Section 4(f) evaluation and the development of the final Section 4(f) evaluation. With the incorporation of this modification, none of the farmstead structures would require removal or relocation, and impacts would be limited to removal of vegetation between the existing roadway and the Proposed Action right of way boundary. Although the vegetation that would be removed contributes to the historic setting of the farmstead, the Federal Highway Administration has determined and the Washington State Department of Archaeological and Historic

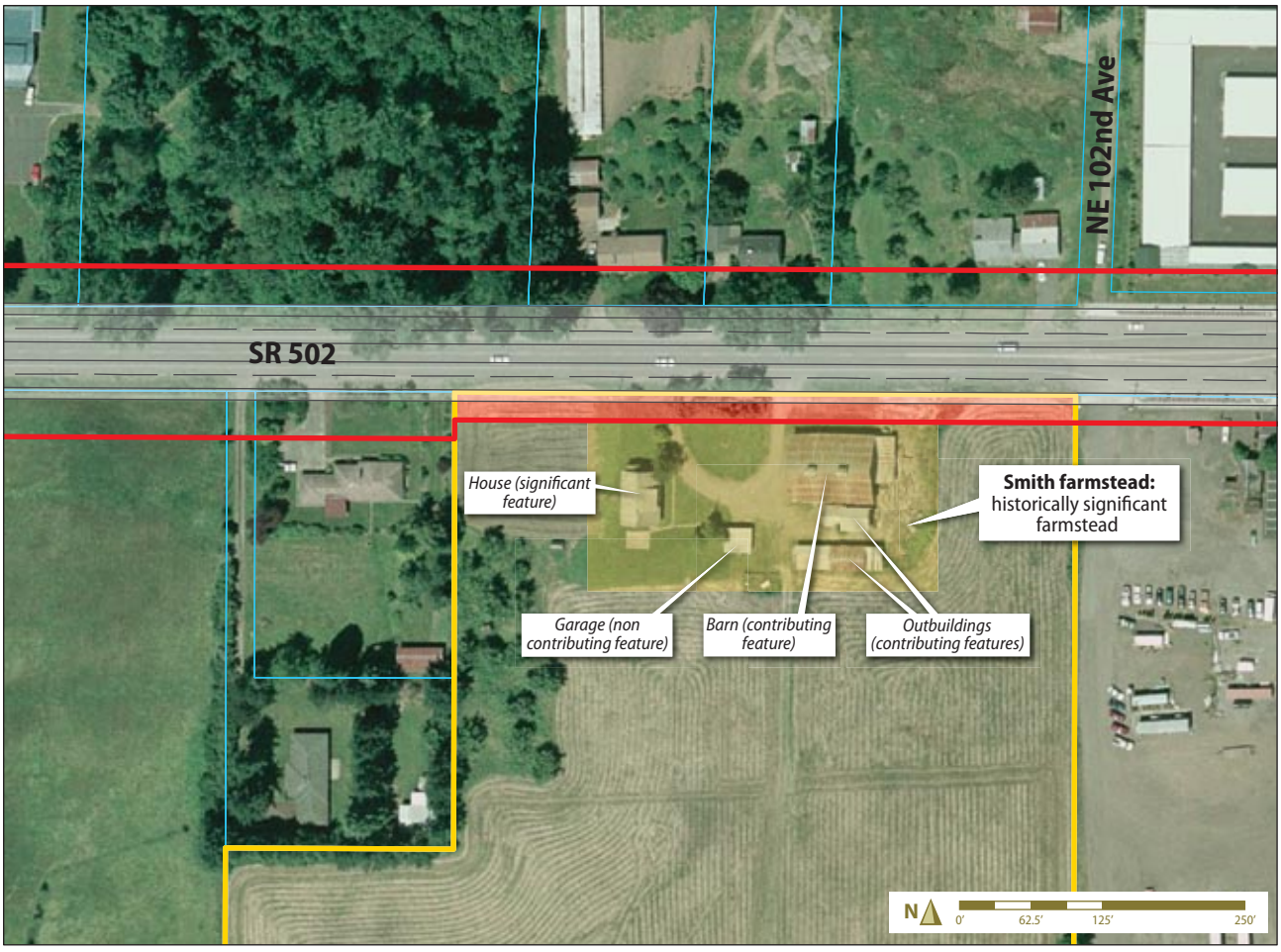

Exhibit 24: The Smith farmstead and the Proposed Action

Preservation has concurred that the Proposed Action would result in No Adverse Effect to the Smith Farmstead under Section 106. This would result in a Section 4(f) *de minimis* impact to the Smith Farmstead due to the removal of vegetation adjacent to the roadway.

3.3 What other historic sites are not subject to Section 4(f)?

The *Cultural Resource Survey for the SR 502 Corridor Widening Project, Clark County* identified a total of 89 historical resources, including the six historic properties determined to be eligible for listing in the National Register of Historic Places. All 89 resources are documented in the *Cultural Resource Survey for the SR 502 Corridor Widening Project, Clark County*. The non-eligible resources, which are therefore not Section 4(f) properties, include houses, commercial buildings, mobile homes, barns, garages, sheds, other outbuildings, a concrete culvert, and a rock arch landscape feature.

Supplemental research to identify potential Section 4(f) property present near the alignment of the off-corridor alternatives was conducted using tax assessor records. These records identified six farms dating from 1920–1940; however, a field visit revealed that all have been modified and/or are architecturally modest. Consequently, none of the sites near the off-corridor alternatives qualify as Section 4(f) property.

4 Impacts to Section 4(f) properties

Each of the alternatives described in Section 2.3 would cause impacts to Section 4(f) properties, with the exception of the Transportation System Management/Transportation Demand Management Alternative and the No Build Alternative (see the evaluation of avoidance alternatives in Section 6). Exhibit 25 summarizes the impacts of each alternative on Section 4(f) properties *before* the incorporation of measures to minimize harm. Sections 4.1 through 4.10 provide a more detailed description of the direct and indirect (proximity) impacts of each alternative.

Exhibit 33, presented later in Section 7, presents a complete analysis of the impact of each alternative on Section 4(f) and other resources *after* the incorporation of measures to minimize harm.

DEFINITION

WHAT IS A *DE MINIMIS* IMPACT?

For historic sites, a *de minimis* impact means that the Federal Highway Administration has determined, in accordance with 36 CFR part 800 (The Advisory Council on Historic Preservation's regulation for implementing Section 106 of the National Historic Preservation Act) that no historic property is affected by the project or that the project will have "no adverse effect" on the historic property in question.

Exhibit 25: Summary of impacts to Section 4(f) properties by alternative *before* incorporation of measures to minimize harm

ALTERNATIVE	IMPACTS TO SECTION 4(F) PROPERTIES *BEFORE* MEASURES TO MINIMIZE HARM					
	BPA transmission line	Ed Allen/Wilson Heasley house	J.B. Williams house	Thomas farmstead	Blair farmstead	Smith farmstead
Yellow	Avoid	Avoid	Use	Avoid	Use	Use
Purple	Avoid	Avoid	Use	Use	Use	Use
White	Avoid	Avoid	Use	Use	Avoid	Use
Red/Brown	Avoid	Avoid	Use	Avoid	*De minimis* impact	Use
Pink (proposed action)	Avoid	Avoid	Use	Use	Use	Use
Blue	Avoid	Avoid	Use	Avoid	*De minimis* impact	Use
Aqua	Avoid	Avoid	Use	*De minimis* impact	Avoid	Use
TSM/TDM	Avoid	Avoid	Avoid	Avoid	Avoid	Avoid
No Build	Avoid	Avoid	Avoid	Avoid	Avoid	Avoid

4.1 How would the Yellow On-Corridor Alternative affect Section 4(f) property?

The Yellow Alternative would cause impacts to three of the historic properties by widening the existing corridor to the north by approximately 75 feet and holding the existing southern right of way boundary (see Exhibit 26). Direct impacts to these properties would include:

- **J.B. Williams house:** Like the other alternatives, the property that includes J.B. Williams house would have been acquired as a mitigation site, requiring removal of the house. Acquisition of the property would change the agricultural land use to a public use as a mitigation site, restoring the historic wetland and stream function as mitigation for the project's wetland and habitat impacts.
- **Blair farmstead**: This alternative would require removal of the house and cottage/shop on the Blair farmstead. Acquisition of right of way on this property would change the agricultural land use to a transportation land use.
- **Smith farmstead**: This alternative would require removal of the barn, which is a contributing feature to the historic farmstead. Vegetation between the roadway and the farmstead structures would also be removed, altering the historic setting of the farmstead. Acquisition of right of way on this property would change the agricultural land use to a transportation land use. As explained in Section 5.1.6, this alternative could incorporate measures to minimize the harm to the Smith farmstead.

The Yellow Alternative would not require the acquisition of any right of way from the parcel on which the Ed Allen/Wilson Heasley house is located or the Thomas farmstead, and therefore, would avoid use of these Section 4(f) properties.

The Yellow Alternative would potentially change access points to properties located adjacent to SR 502 including access to the Bonneville Power Administration Vancouver–Covington transmission line; relocation of the driveway access from SR 502 to NE 82nd Avenue for the remaining portion of the Blair farmstead; relocation of the driveway access from SR 502 to NE 67th Avenue for the Ed Allen/Wilson Heasley house; and consolidation of driveway accesses for the Thomas farmstead and the Smith farmstead.

Proximity impacts that may occur to these historic properties include:

- **Air quality:** The study area is in attainment for all National Ambient Air Quality Standards criteria pollutants, so it is considered to have air quality as good as or better than specified by these standards. Modeling shows that the alternatives would not cause a violation of the applicable National Ambient Air Quality Standards, and future carbon monoxide levels along the corridor are expected to be similar to today's levels. The alternatives are not expected to have significant effects on levels of particulate matter since they would not result in substantial changes in the overall number of trips being made in the study area.
- **Visual quality:** The Yellow Alternative could have visual impacts to Section 4(f) properties. Relocation of the tower for the Bonneville Power Administration Vancouver–Covington transmission line would be a minor visual change to the setting of the historic transmission line. Removal of the J.B. Williams house, the Blair farmstead house and cottage/shop, and the barn on the Smith farmstead would visually change the agricultural setting of these properties. Vegetation around the properties would also likely be altered. Removal of any vegetation within the existing right of way could slightly change the visual setting of the Thomas farmstead and Ed Allen/Wilson Heasley house, although the road would not be located any closer to these properties than it is currently.
- **Noise:** Noise levels under the Yellow Alternative would be expected to increase slightly for the remaining structures of the Blair farmstead and the Smith farmstead since the new roadway would be located closer to the house than its current alignment. The other Section 4(f) properties that would potentially be affected by noise would be removed or relocated under this alternative.

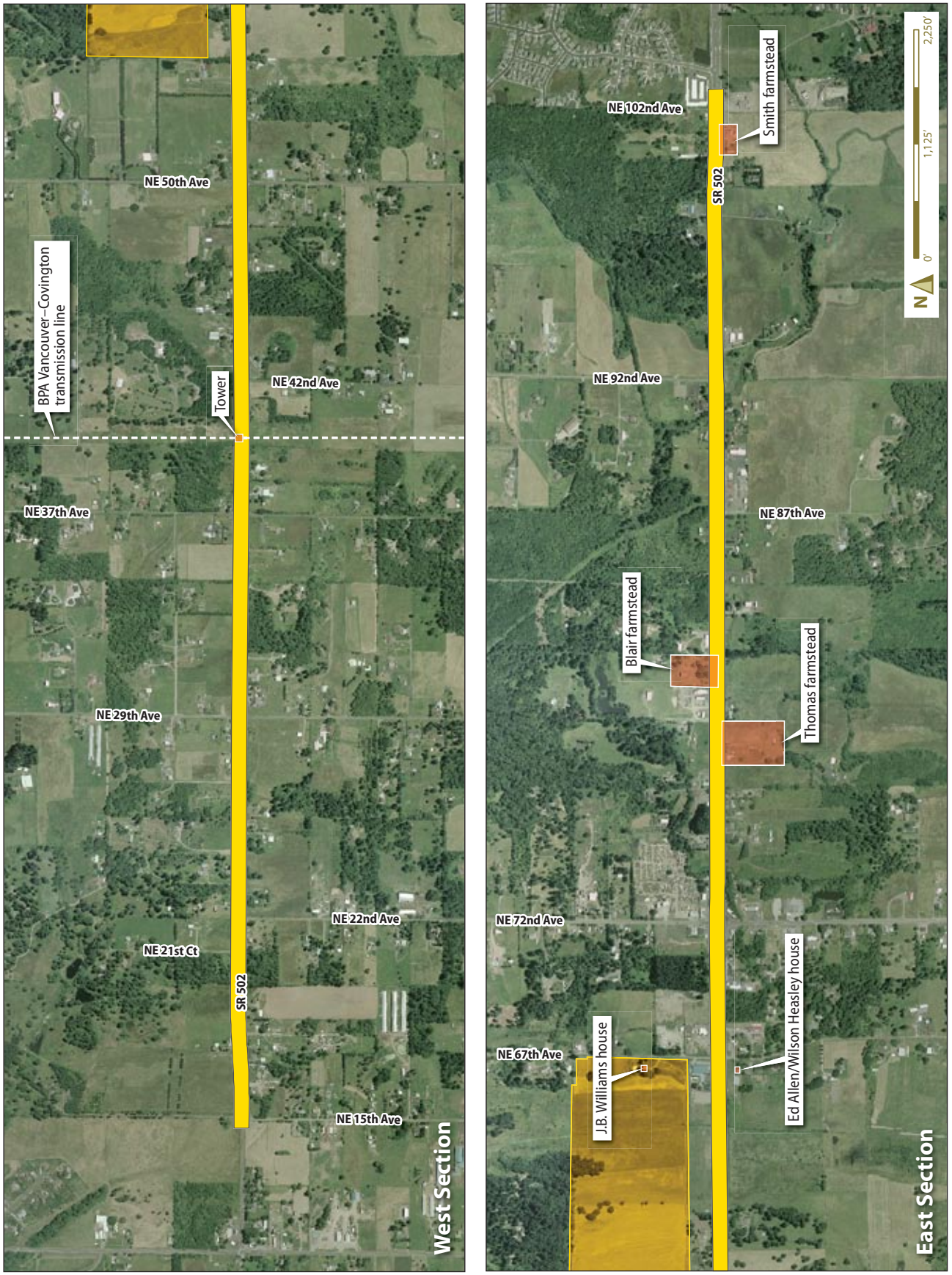

Exhibit 26: The Yellow Alternative and Section 4(f) properties

- **Water quality**: Stormwater detention and treatment and wetland mitigation are proposed for any of the build alternatives, which would result in no net change of water quality for the Section 4(f) properties.

The proximity impacts of the Yellow Alternative will not result in a constructive use of any of the Section 4(f) properties.

4.2 How would the Purple On-Corridor Alternative affect Section 4(f) property?

The Purple Alternative would cause impacts to four historic properties by widening the existing corridor symmetrically from the existing centerline to the north and the south by a total of approximately 75 feet (see Exhibit 27). Direct impacts of these properties would include:

- **J.B. Williams house:** Like the other alternatives, the property that includes J.B. Williams house would have been acquired as a mitigation site, requiring removal of the house. Acquisition of the property would change the agricultural land use to a public use as a mitigation site, restoring the historic wetland and stream function as mitigation for the project's wetland and habitat impacts.
- **Thomas farmstead:** This alternative would require removal of the house on the Thomas farmstead. Acquisition of right of way on this property would change the agricultural land use to a transportation land use.
- **Blair farmstead:** This alternative would require removal of the house on the Blair farmstead. Acquisition of right of way on this property would change the agricultural land use to a transportation land use. As explained in Section 5.1.5, this alternative could incorporate measures to minimize the harm to the Blair farmstead.
- **Smith farmstead**: This alternative would require removal of the barn, which is a contributing feature to the historic farmstead. Vegetation between the roadway and the farmstead structures would also be removed, altering the historic setting of the farmstead. Acquisition of right of way on this property would change the agricultural land use to a transportation land use. As explained in Section 5.1.6, this alternative could incorporate measures to minimize the harm to the Smith farmstead.

The Purple Alternative would not cause impacts to the Ed Allen/Wilson Heasley house, and therefore would avoid use of this Section 4(f) property.

The Purple Alternative would potentially change access points to properties located adjacent to SR 502 including access to the Bonneville Power Administration Vancouver–Covington transmission line; relocation of the driveway access from SR 502 to NE 82nd Avenue for

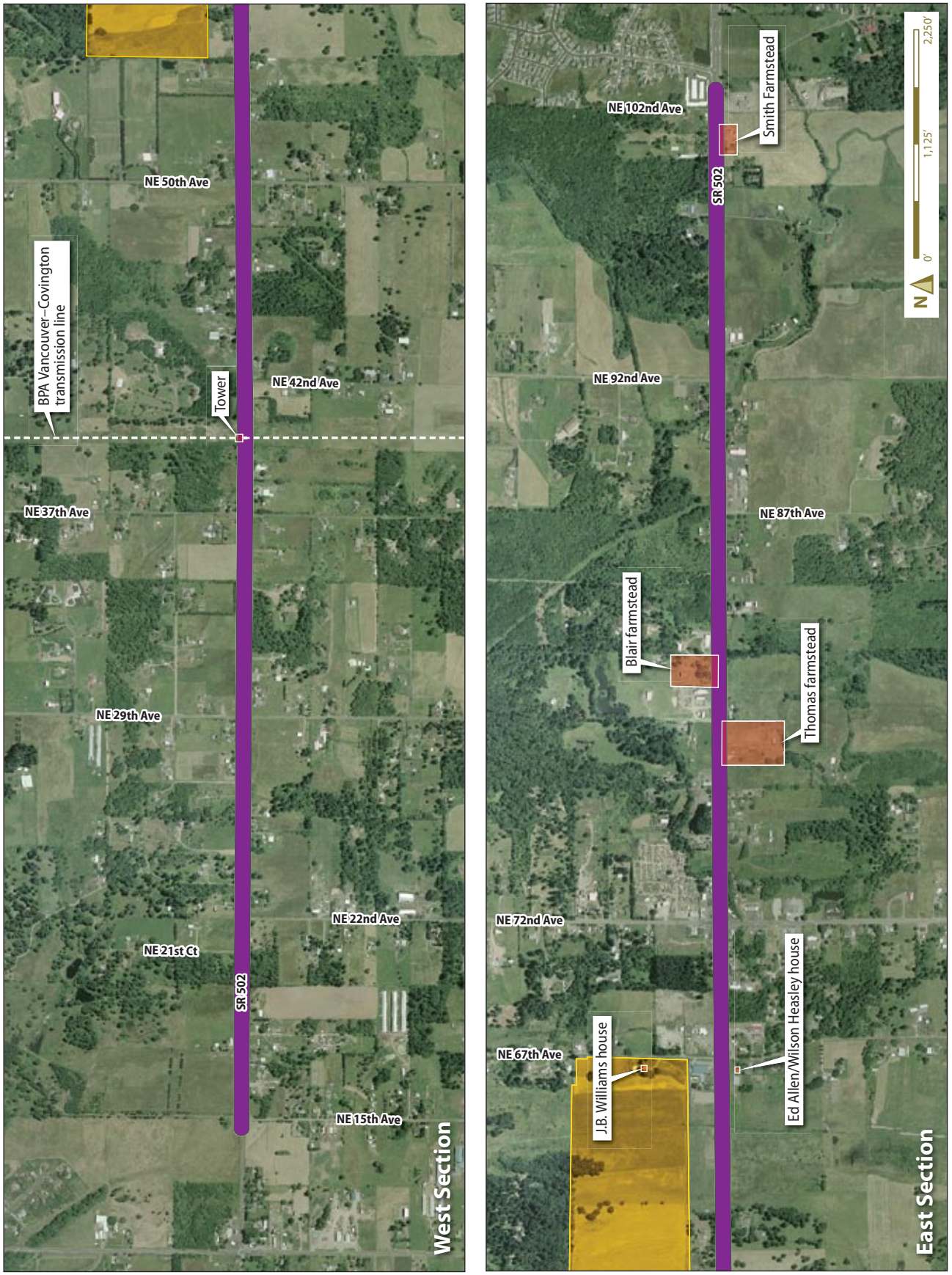

Exhibit 27: The Purple Alternative and Section 4(f) properties

the remaining portion of the Blair farmstead; relocation of the driveway access from SR 502 to NE 67th Avenue for the Ed Allen/Wilson Heasley house; and consolidation of driveway accesses for the remaining portion of the Thomas farmstead and the Smith farmstead.

Proximity impacts that may occur to these historic properties include:

- **Air quality:** The study area is in attainment for all National Ambient Air Quality Standards criteria pollutants, so it is considered to have air quality as good as or better than specified by these standards. Modeling shows that the alternatives would not cause a violation of the applicable National Ambient Air Quality Standards, and future carbon monoxide levels along the corridor are expected to be similar to today's levels. The alternatives are not expected to have significant effects on levels of particulate matter since they would not result in substantial changes in the overall number of trips being made in the study area.
- **Visual quality:** The Purple Alternative could have visual impacts to Section 4(f) properties. Relocation of the tower for the Bonneville Power Administration Vancouver–Covington transmission line would be a minor visual change to the setting of the historic transmission line. Removal of the J.B. Williams house, the Blair farmstead house and cottage/shop, the Thomas farmstead house, and the barn on the Smith farmstead would visually change the agricultural setting of these properties. Vegetation around the properties would also likely be altered. Removal of any vegetation and expansion of the roadway closer to the Ed Allen/Wilson Heasley house could slightly change the visual setting of the historic house, although the setting is not considered a significant component of this Section 4(f) property.
- **Noise:** Noise levels would be expected to increase slightly for the Ed Allen/Wilson Heasley house and the remaining structures on the Thomas farmstead, the Blair farmstead, and the Smith farmstead since the new roadway would be located closer to the structures than its current alignment. The other Section 4(f) properties that would potentially be affected by noise would be removed or relocated under this alternative.
- **Water quality:** Stormwater detention and treatment and wetland mitigation are proposed for any of the build alternatives, which would result in no net change of water quality for the Section 4(f) properties.

The proximity impacts of the Purple Alternative will not result in a constructive use of any of the Section 4(f) properties.

4.3 How would the White On-Corridor Alternative affect Section 4(f) property?

The White Alternative would cause impacts to three historic properties by widening the existing corridor to the south by approximately 75 feet and holding the existing northern right of way boundary (see Exhibit 28). Direct impacts to these properties would include:

- **J.B. Williams house:** Like the other alternatives, the property that includes the J.B. Williams house would have been acquired as a mitigation site, requiring removal of the house. Acquisition of the property would change the agricultural land use to a public use as a mitigation site, restoring the historic wetland and stream function as mitigation for the project's wetland and habitat impacts.
- **Thomas farmstead:** This alternative would require removal of the house on the Thomas farmstead. Acquisition of right of way on this property would change the agricultural land use to a transportation land use.
- **Smith farmstead**: This alternative would require removal of the barn, which is a contributing feature to the historic farmstead. Vegetation between the roadway and the farmstead structures would also be removed, altering the historic setting of the farmstead. Acquisition of right of way on this property would change the agricultural land use to a transportation land use. As explained in Section 5.1.6, this alternative could incorporate measures to minimize the harm to the Smith farmstead.

The White Alternative would have no effect on the Blair farmstead or the Bonneville Power Administration Vancouver–Covington transmission line as these properties are located on the north side of the roadway, and this alternative would hold the existing northern right of way boundary. The alternative would not affect the Ed Allen/Wilson Heasley house, and therefore, would avoid use of this Section 4(f) property as well.

The White Alternative would potentially change access points to properties located adjacent to SR 502: relocation of the driveway access from SR 502 to NE 82nd Avenue for the Blair farmstead; relocation of the driveway access from SR 502 to NE 67th Avenue for the Ed Allen/ Wilson Heasley house; and consolidation of driveway accesses for the remaining portion of the Thomas farmstead and the Smith farmstead.

Proximity impacts that may occur to these historic properties include:

- **Air quality:** The study area is in attainment for all National Ambient Air Quality Standards criteria pollutants, so it is considered to have

air quality as good as or better than specified by these standards. Modeling shows that the alternatives would not cause a violation of the applicable National Ambient Air Quality Standards, and future carbon monoxide levels along the corridor are expected to be similar to today's levels. The alternatives are not expected to have significant effects on levels of particulate matter since they would not result in substantial changes in the overall number of trips being made in the study area.

- **Visual quality:** The White Alternative could have visual impacts to Section 4(f) properties. Removal of the J.B. Williams house, the Thomas farmstead house, and the barn on the Smith farmstead would visually change the agricultural setting of these properties. Vegetation around the properties would likely be altered. Removal of the non-significant outbuilding at the Ed Allen/Wilson Heasley house and vegetation within the widened right of way would slightly change the visual setting of the Ed Allen/Wilson Heasley house. Removal of vegetation within the existing right of way could be a minor change in the visual setting of the Blair farmstead and the Bonneville Power Administration Vancouver–Covington transmission line, although the road would not be located any closer to these properties than it is currently.
- **Noise:** The White Alternative would cause the road to be located closer to the Ed Allen/Wilson Heasley house and the remaining structures on the Thomas farmstead and Smith farmstead than its existing alignment, so noise from the roadway could be greater than current levels; however, the other remaining Section 4(f) properties (Blair farmstead, Bonneville Power Administration Vancouver–Covington transmission line) would not have noise impacts.
- **Water quality:** Stormwater detention and treatment and wetland mitigation are proposed for any of the build alternatives, which would result in no net change of water quality for the Section 4(f) properties.

The proximity impacts of the White Alternative will not result in a constructive use of any of the Section 4(f) properties.

4.4 How would the Red/Brown On-Corridor Alternative affect Section 4(f) property?

The Red/Brown Alternative would cause impacts to three historic properties by widening the existing corridor symmetrically from the existing centerline to the north and the south by a total of approximately 75 feet, following a route north of Dollars Corner (see Exhibit 29). Direct impacts to these properties would include:

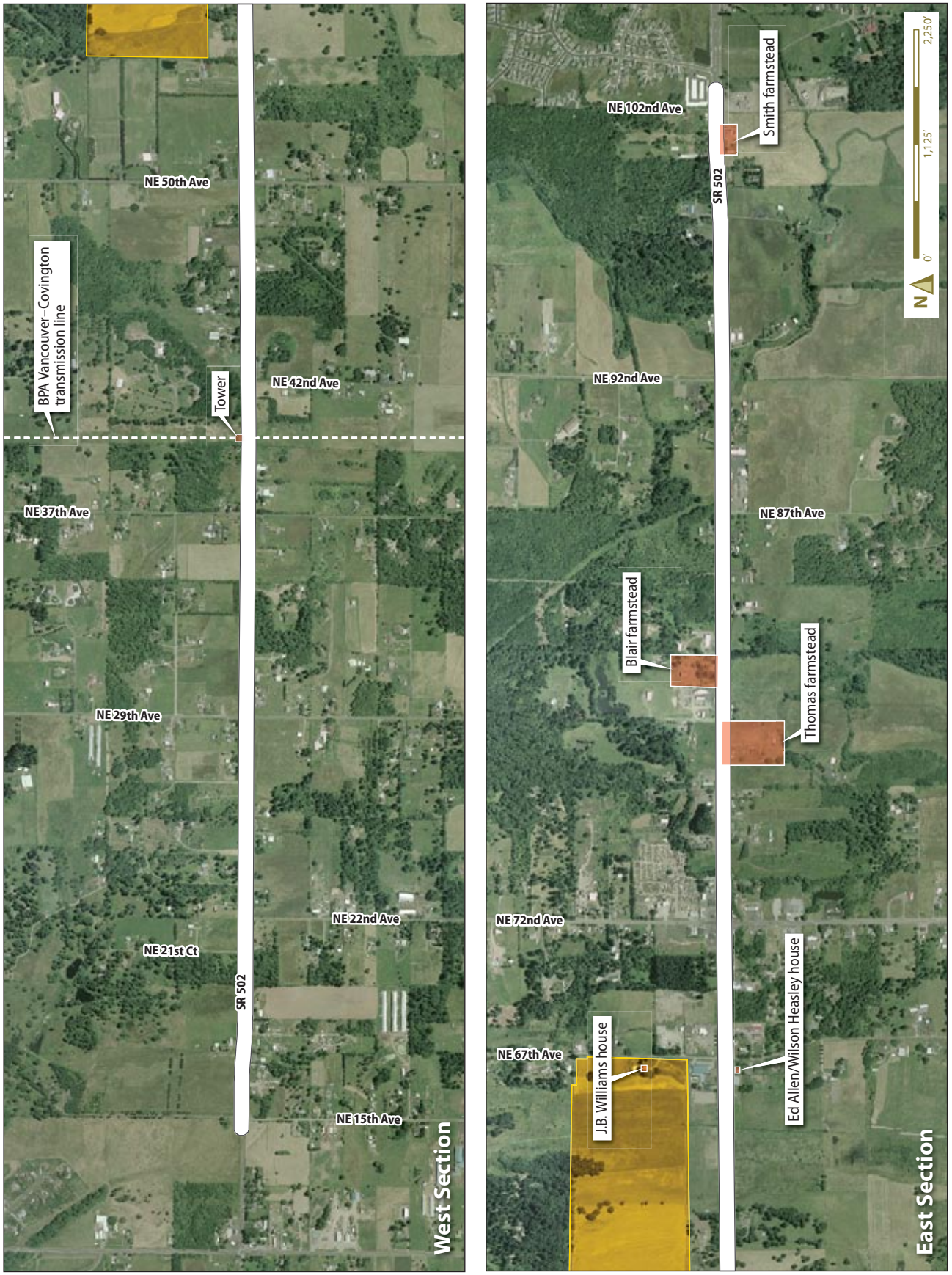

Exhibit 28: The White Alternative and Section 4(f) properties

- **J.B. Williams house:** This alternative would cross the property that includes the J.B. Williams house and require removal of the barn, which is not a significant historic property. Like the other alternatives, the remainder of the property containing the J.B. Williams house would have been acquired as a mitigation site, requiring removal of the historic home in addition to the barn. Acquisition of the property would change the agricultural land use to a public use as a mitigation site, restoring the historic wetland and stream function as mitigation for the project's wetland and habitat impacts.
- **Blair farmstead:** This alternative would cross through the northeast corner of the Blair farmstead is located; while this would not require impacts to the structures of the historically significant farmstead, it would slightly change the setting of the farmstead, and thus the alternative would likely have a *de minimis* impact (if the Federal Highway Administration determined and the Washington State Department of Archaeological and Historic Preservation concurred that this is No Adverse Effect under Section 106). Acquisition of right of way on this property would change the agricultural land use to a transportation land use.
- **Smith farmstead**: This alternative would require removal of the barn, which is a contributing feature to the historic farmstead. Vegetation between the roadway and the farmstead structures would also be removed, altering the historic setting of the farmstead. Acquisition of right of way on this property would change the agricultural land use to a transportation land use. As explained in Section 5.1.6, this alternative could incorporate measures to minimize the harm to the Smith farmstead.

The Red/Brown Alternative would not affect the Ed Allen/Wilson Heasley house or the Thomas farmstead, and therefore, would avoid use of these Section 4(f) properties.

The Red/Brown Alternative would potentially change access points to properties located adjacent to SR 502 for the portion of the alignment that is on-corridor including access to the Bonneville Power Administration Vancouver–Covington transmission line. This alternative would also result in the consolidation of driveway accesses for the remaining portion of the Smith farmstead.

Proximity impacts that may occur to these historic properties include:

- **Air quality:** The study area is in attainment for all National Ambient Air Quality Standards criteria pollutants, so it is considered to have air quality as good as or better than specified by these standards. Modeling shows that the alternatives would not cause a violation of the

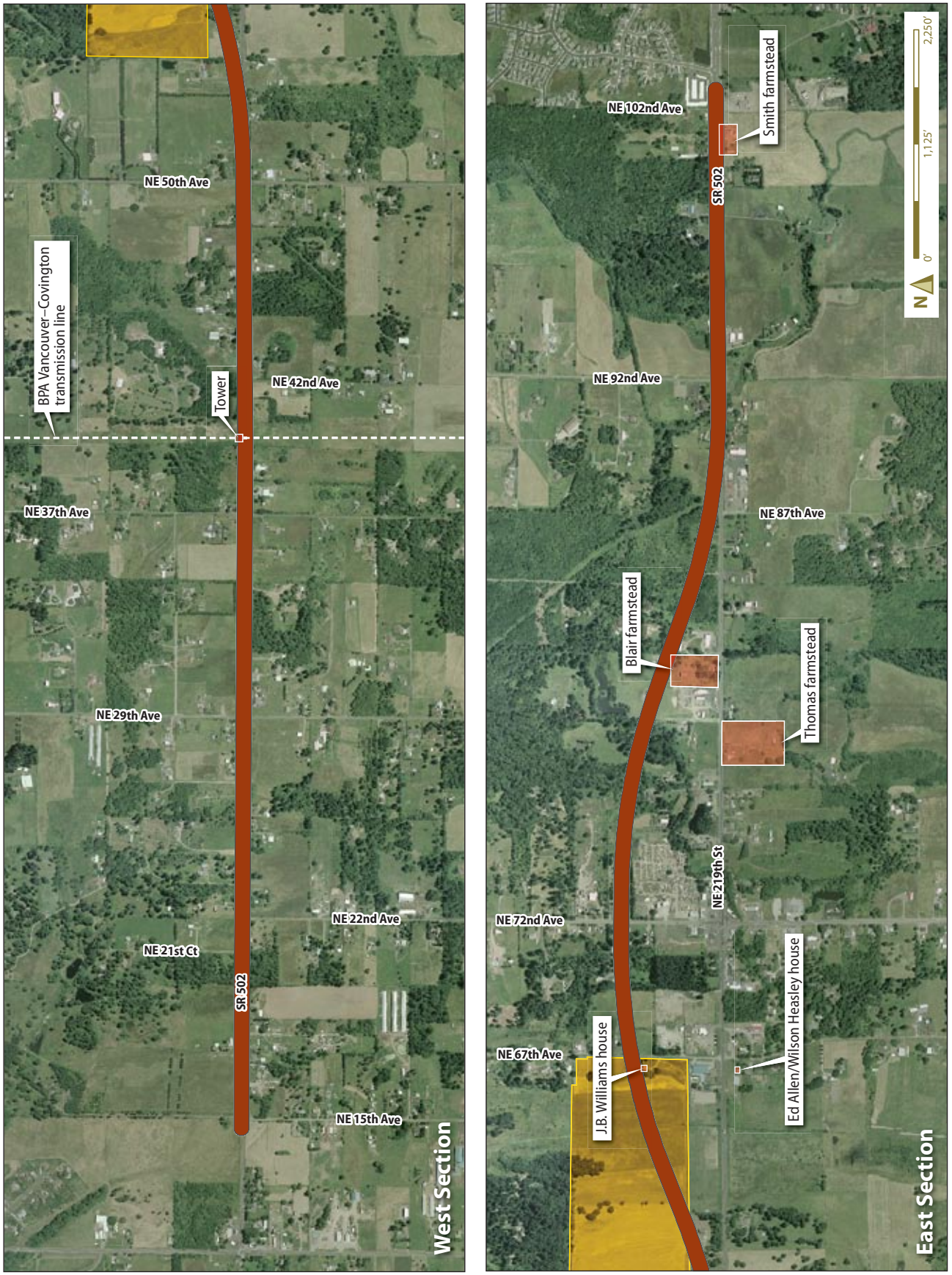

Exhibit 29: The Red/Brown Alternative and Section 4(f) properties

applicable National Ambient Air Quality Standards, and future carbon monoxide levels along the corridor are expected to be similar to today's levels. The alternatives are not expected to have significant effects on levels of particulate matter since they would not result in substantial changes in the overall number of trips being made in the study area.

- **Visual quality:** The Red/Brown Alternative could have visual impacts to Section 4(f) properties. Relocation of the tower for the Bonneville Power Administration Vancouver–Covington transmission line would be a minor visual change to the setting of the historic transmission line. Removal of the J.B. Williams house and the barn on this property, plus the new alignment of the roadway through the J.B. Williams house property would visually change the agricultural setting of this property. Similarly, the new alignment of the roadway through the Blair farmstead north of the structures would slightly visually change the setting of this farmstead even though all of the structures would be retained. Removal of the barn on the Smith farmstead would change the agricultural setting of this farmstead. Vegetation around the properties would also likely be altered. The visual setting of the Ed Allen/Wilson Heasley house and the Thomas farmstead would not be changed, as neither of these would be adjacent to the new roadway.
- **Noise:** The Red/Brown Alternative would likely cause increased noise levels for the structures on Blair farmstead because the new roadway would run on the north side of the structures, and the existing roadway, which would be retained as a local road, would remain on the south side of the structures. Noise levels would also be expected to increase slightly for the remaining structures of the Smith farmstead since the new roadway would be located closer to the house than its current alignment. However, the other remaining Section 4(f) properties (Ed Allen/Wilson Heasley house and Thomas farmstead) would not have noise impacts as the new roadway would be located further from them than the existing SR 502 alignment.
- **Water quality:** Stormwater detention and treatment and wetland mitigation are proposed for any of the build alternatives, which would result in no net change of water quality for the Section 4(f) properties.

The proximity impacts of the Red/Brown Alternative will not result in a constructive use of any of the Section 4(f) properties.

4.5 How would the Pink On-Corridor Alternative (Proposed Action) affect Section 4(f) property?

The Pink Alternative is the Proposed Action, which is a hybrid alternative developed from the other on-corridor alternatives and the Transportation System Management/Transport Demand Management

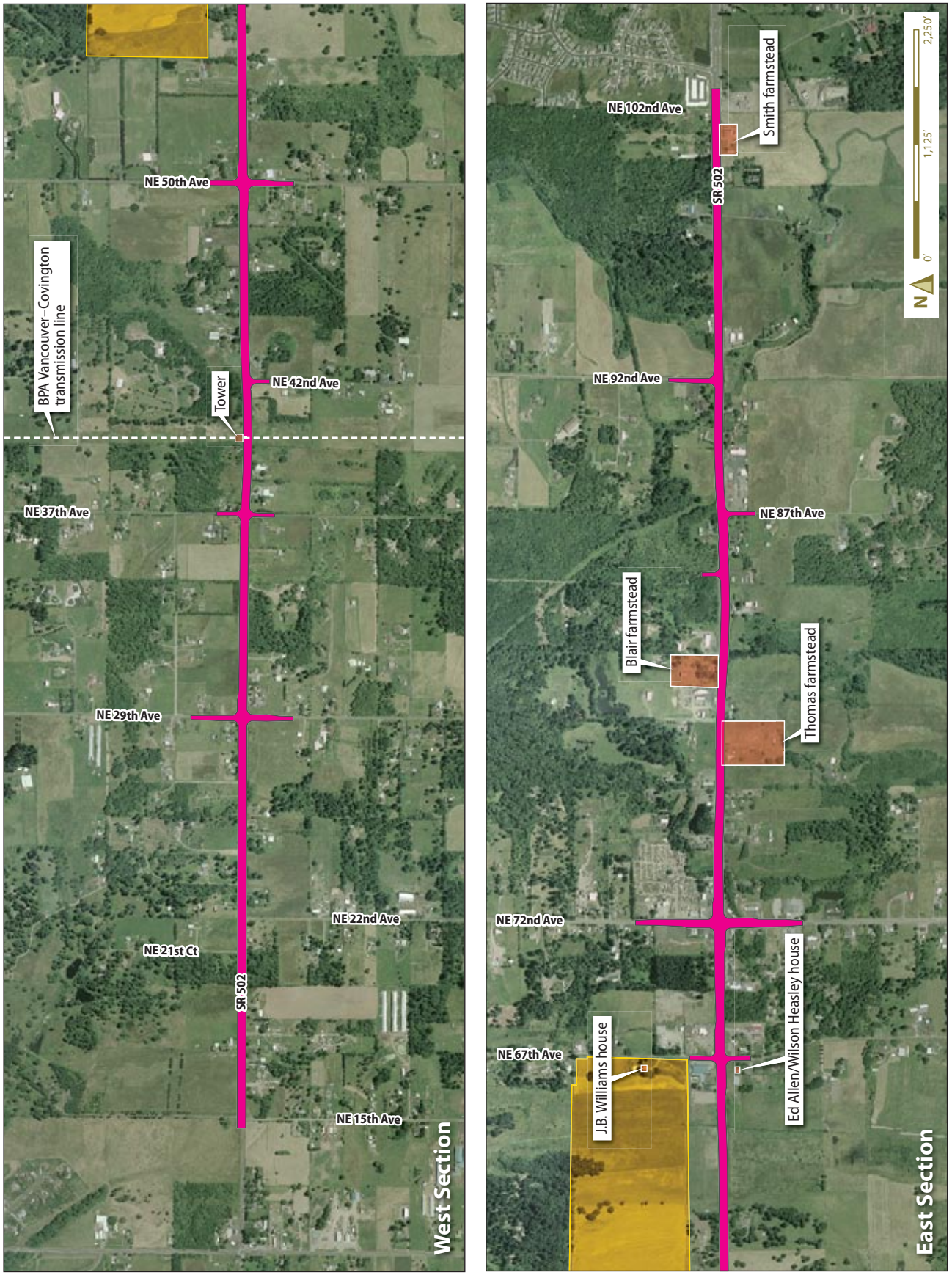

Exhibit 30: The Pink Alternative (Proposed Action) and Section 4(f) properties

Alternative. This alternative would cause impacts to four historic properties by widening the existing corridor by approximately 75 feet through Dollars Corner with some slight curves to minimize adverse effects to the environment and the community (see Exhibit 30). Direct impacts to these properties would include:

- **J.B. Williams house:** Like the other alternatives, the property that includes the J.B. Williams house would have been acquired as a mitigation site, requiring removal of the house. Acquisition of the property would change the agricultural land use to a public use as a mitigation site, restoring the historic wetland and stream function as mitigation for the project's wetland and habitat impacts.
- **Thomas farmstead:** This alternative would require removal of the house on the Thomas farmstead; however, mitigation options will include an investigation as to whether the house can be relocated, as discussed in Section 5.2. Acquisition of right of way on this property would change the agricultural land use to a transportation land use.
- **Blair farmstead:** The Pink Alternative would require acquisition of right of way along the SR 502 frontage for the Blair farmstead, removing vegetation between the roadway and the house, but not causing impacts to any structures. This right of way acquisition would result in a minor impact to the historic setting of the Blair farmstead. However, with the incorporation of all possible planning measures as described in Section 5.1.5, this would result in a *de minimis* impact. The Federal Highway Administration determined and the Washington State Department of Archaeological and Historic Preservation concurred that the Proposed Action would result in No Adverse Effect under Section 106; the Washington State Department of Archaeological and Historic Preservation was notified of the Federal Highway Administration and Washington State Department of Transportation's intent to make a *de minimis* impact determination (see Appendix D, *Agency Correspondence*, to the final environmental impact statement). Acquisition of right of way on this property would change the agricultural land use to a transportation land use.
- **Smith farmstead**: This alternative would have required removal of the barn, which is a contributing feature to the historic farmstead; however, during the design refinement process between the draft Section 4(f) evaluation and final Section 4(f) evaluation, the right of way for the Pink Alternative has been narrowed to avoid removal of the barn, as discussed in Sections 3.2.6 and 5.1.6. Acquisition of right of way along the SR 502 frontage for the Smith farmstead would still need to occur, resulting in removal of some vegetation between the roadway and the farmstead structures, altering the historic setting

of the farmstead. However, the Pink Alternative would not affect the significant relationship of the farm buildings to each other as a grouping, nor would it impact the character-defining features of the house, barn, and outbuildings that make them significant. With the incorporation of all possible planning measures as described in Section 5.1.6, this would result in a *de minimis* impact. The Federal Highway Administration has determined and the Washington State Department of Archaeological and Historic Preservation concurred that the Proposed Action would result in No Adverse Effect under Section 106; the Washington State Department of Archaeological and Historic Preservation was notified of the Federal Highway Administration and Washington State Department of Transportation's intent to make a *de minimis* impact determination (see Appendix D, *Agency Correspondence*, to the final environmental impact statement). Acquisition of right of way on this property would change the agricultural land use to a transportation land use.

The Pink Alternative would not affect the Bonneville Power Administration Vancouver–Covington transmission line and the Ed Allen/Wilson Heasley house, and therefore would avoid use of these Section 4(f) properties.

The Pink Alternative would potentially change access points to properties located adjacent to SR 502 including the access to the Bonneville Power Administration Vancouver–Covington transmission line; relocation of the driveway access from SR 502 to NE 82nd Avenue for the Blair farmstead; relocation of the driveway access from SR 502 to NE 67th Avenue for the Ed Allen/Wilson Heasley house; and consolidation of driveway accesses for the Smith farmstead and the remaining portion of the Thomas farmstead.

Proximity impacts that may occur to these historic properties include:

- **Air quality:** The study area is in attainment for all National Ambient Air Quality Standards criteria pollutants, so it is considered to have air quality as good as or better than specified by these standards. Modeling shows that the alternatives would not cause a violation of the applicable National Ambient Air Quality Standards, and future carbon monoxide levels along the corridor are expected to be similar to today's levels. The alternatives are not expected to have significant effects on levels of particulate matter since they would not result in substantial changes in the overall number of trips being made in the study area.

- **Visual quality:** The Pink Alternative could have visual impacts to Section 4(f) properties. Removal of the J.B. Williams house and the Thomas farmstead house would visually change the agricultural setting of these properties. Vegetation around the properties would also likely be altered. Similarly, road widening and removal of the vegetation along the SR 502 frontage of the Blair farmstead, the Ed Allen/Wilson Heasley house, and the Smith farmstead would slightly change the visual setting of these Section 4(f) properties, although the setting is not considered a significant component for the Ed Allen/Wilson Heasley house.
- **Noise:** Noise levels would be expected to increase slightly for the Ed Allen/Wilson Heasley house, the structures on the Blair farmstead, and the structures on the Smith farmstead since the new roadway would be located closer than its current alignment. The other Section 4(f) properties that would potentially be affected by noise would be removed or relocated under this alternative.
- **Water quality:** Stormwater detention and treatment and wetland mitigation are proposed for any of the build alternatives, which would result in no net change of water quality for the Section 4(f) properties.

The proximity impacts of the Pink Alternative will not result in a constructive use of any of the Section 4(f) properties.

4.6 How would the Blue Off-Corridor Alternative affect Section 4(f) property?

The Blue Alternative would cause impacts to three historic properties by creating a new roadway with a 150-foot right of way for the SR 502 off-corridor, running parallel to NE 219th Street to the north (see Exhibit 31). Direct impacts to these properties would include:

- **J.B. Williams house:** Like the other alternatives, the property that includes the J.B. Williams house would have been acquired as a mitigation site, requiring removal of the house; the new roadway would run along the northern property line of this parcel. Acquisition of the property would change the agricultural land use to a public use as a mitigation site, restoring the historic wetland and stream function as mitigation for the project's wetland and habitat impacts.
- **Blair farmstead:** The new roadway would run through the northern portion of the parcel containing the historic Blair farmstead, but it would not adversely affect the farmstead or any of its structures; however, this would slightly change the setting of the farmstead, so this would be a *de minimis* impact (if the Federal Highway Administration determined and the Washington State Department of Archaeological and Historic Preservation concurred that this is No

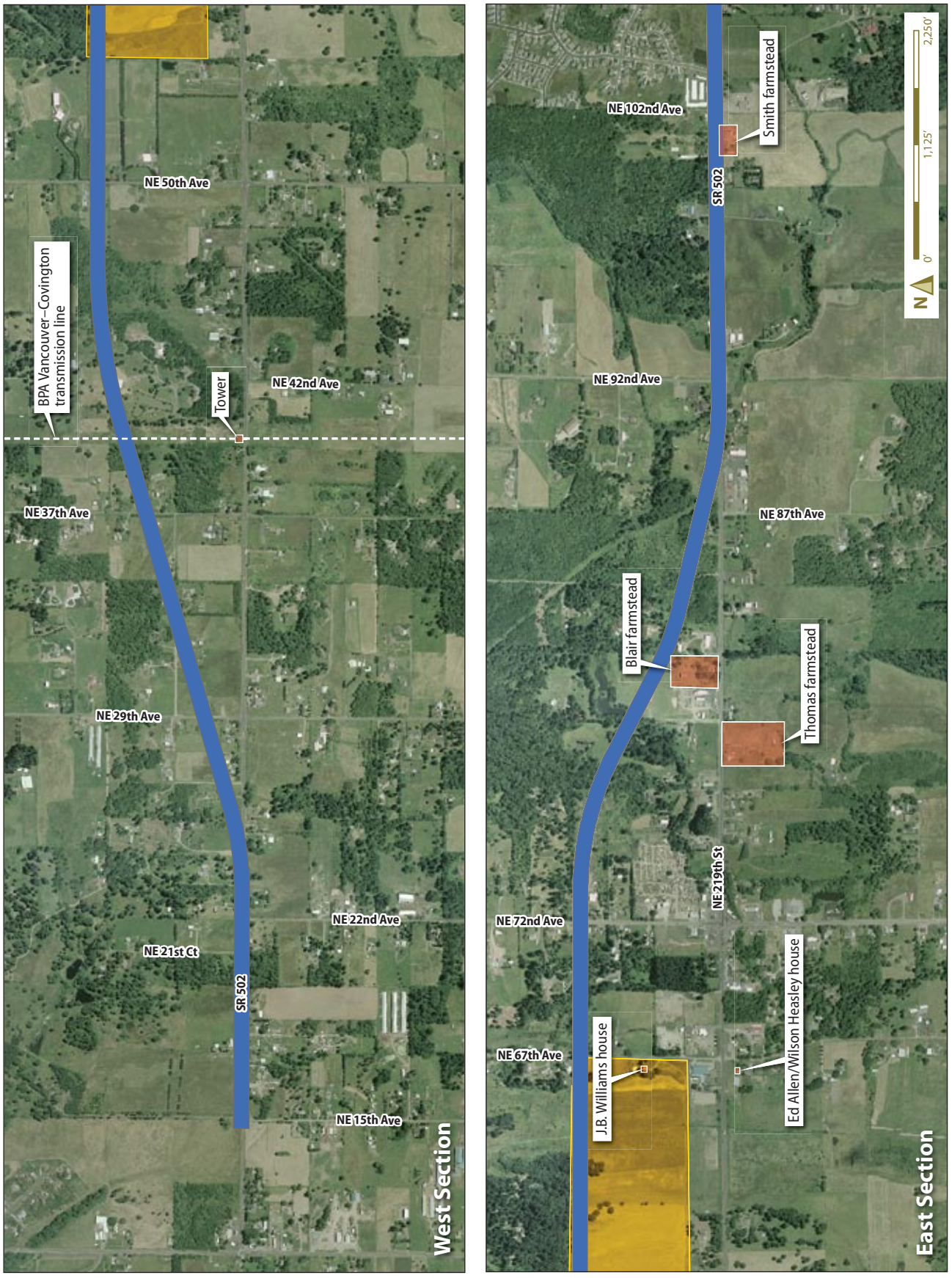

Exhibit 31: The Blue Alternative and Section 4(f) properties

Adverse Effect under Section 106). Acquisition of right of way on this property would change the agricultural land use to a transportation land use.

- **Smith farmstead**: This alternative would require removal of the barn, which is a contributing feature to the historic farmstead. Vegetation between the roadway and the farmstead structures would also be removed, altering the historic setting of the farmstead. Acquisition of right of way on this property would change the agricultural land use to a transportation land use. As explained in Section 5.1.6, this alternative could incorporate measures to minimize the harm to the Smith farmstead.

This alternative would cross the Bonneville Power Administration Vancouver–Covington transmission line, further north than the on-corridor alternatives, but would not cause removal or relocation of any towers and therefore would not have any impacts. The Ed Allen/Wilson Heasley house and the Thomas farmstead would not be affected by this alternative, and therefore this alternative would avoid use of these Section 4(f) properties.

The Blue Alternative would consolidate driveway accesses for the remaining portion of the Smith farmstead. It would not change access for any of the other Section 4(f) properties, as none of their existing access points intersect the proposed alignment.

Proximity impacts that may occur to these historic properties include:

- **Air quality:** The study area is in attainment for all National Ambient Air Quality Standards criteria pollutants, so it is considered to have air quality as good as or better than specified by these standards. Modeling shows that the alternatives would not cause a violation of the applicable National Ambient Air Quality Standards, and future carbon monoxide levels along the corridor are expected to be similar to today's levels. The alternatives are not expected to have significant effects on levels of particulate matter since they would not result in substantial changes in the overall number of trips being made in the study area.
- **Visual quality:** The Blue Alternative could have visual impacts to Section 4(f) properties. Removal of the J.B. Williams house and the new alignment of the roadway along the northern property line would visually change the agricultural setting of this property. Removal of the barn on the Smith farmstead would change the agricultural setting of this farmstead. Vegetation around the property would also likely be altered. Similarly, construction of the new roadway through the Blair farmstead would slightly change the visual

setting of this farm, even though the alternative would not cause impacts to the structures.

- **Noise:** The Blue Alternative would likely cause increased noise levels for the structures on Blair farmstead because the new roadway would run on the north side of the structures, and the existing roadway, which would be retained as a local road, would remain on the south side of the structures. Noise levels would also be expected to increase slightly for the remaining structures of the Smith farmstead since the new roadway would be located closer to the house than its current alignment. However, the other remaining Section 4(f) properties (Ed Allen/Wilson Heasley house and Thomas farmstead) would not have noise impacts as the new roadway would be located further from them than the existing SR 502 alignment.
- **Water quality:** Stormwater detention and treatment and wetland mitigation are proposed for any of the build alternatives, which would result in no net change of water quality for the Section 4(f) properties.

The proximity impacts of the Blue Alternative will not result in a constructive use of any of the Section 4(f) properties.

4.7 How would the Aqua Off-Corridor Alternative affect Section 4(f) property?

The Aqua Alternative would cause impacts to three historic properties by creating a new roadway with a 150-foot right of way for the SR 502 off-corridor, running parallel to NE 219th Street to the south (see Exhibit 32). Direct impacts to these properties would include:

- **J.B. Williams house:** Like the other alternatives, the property that includes the J.B. Williams house would have been acquired as a mitigation site, requiring removal of the house. Acquisition of the property would change the agricultural land use to a public use as a mitigation site, restoring the historic wetland and stream function as mitigation for the project's wetland and habitat impacts.
- **Thomas farmstead:** The Aqua Alternative would run through the parcel containing the Thomas farmstead, but the alignment would be south of the historic farmstead and its structures, so this would be a *de minimis* impact due to the change in the setting of the historic farmstead (if the Federal Highway Administration determined and the Washington State Department of Archaeological and Historic Preservation concurred that this is No Adverse Effect under Section 106). Acquisition of right of way on this property would change the agricultural land use to a transportation land use.

- **Smith farmstead**: This alternative would require removal of the barn, which is a contributing feature to the historic farmstead. Vegetation between the roadway and the farmstead structures would also be removed, altering the historic setting of the farmstead. Acquisition of right of way on this property would change the agricultural land use to a transportation land use. As explained in Section 5.1.6, this alternative could incorporate measures to minimize the harm to the Smith farmstead.

This alternative would cross the Bonneville Power Administration Vancouver–Covington transmission line, further south than the on-corridor alternatives, but would not cause removal or relocation of any towers and therefore would have no impact. The Aqua Alternative would not affect the Ed Allen/Wilson Heasley house or the Blair farmstead, and therefore would avoid use of these Section 4(f) properties.

The Aqua Alternative would consolidate driveway accesses for the Smith farmstead. It would not change access for any of the other Section 4(f) properties, as none of their existing access points intersect the proposed alignment.

Proximity impacts that may occur to these historic properties include:

- **Air quality:** The study area is in attainment for all National Ambient Air Quality Standards criteria pollutants, so it is considered to have air quality as good as or better than specified by these standards. Modeling shows that the alternatives would not cause a violation of the applicable National Ambient Air Quality Standards, and future carbon monoxide levels along the corridor are expected to be similar to today's levels. The alternatives are not expected to have significant effects on levels of particulate matter since they would not result in substantial changes in the overall number of trips being made in the study area.
- **Visual quality:** The Aqua Alternative could have visual impacts to Section 4(f) properties. Removal of the J.B. Williams house and the barn on the Smith farmstead would visually change the agricultural setting of these properties. Vegetation around the property would also likely be altered. Similarly, construction of the new roadway through the parcel containing Thomas farmstead would cause a minor change to the visual setting of this farm, even though the alternative would not cause impacts to the structures.
- **Noise:** The Aqua Alternative would likely cause increased noise levels for the structures on Thomas farmstead because the new roadway would run on the south side of the structures, and the

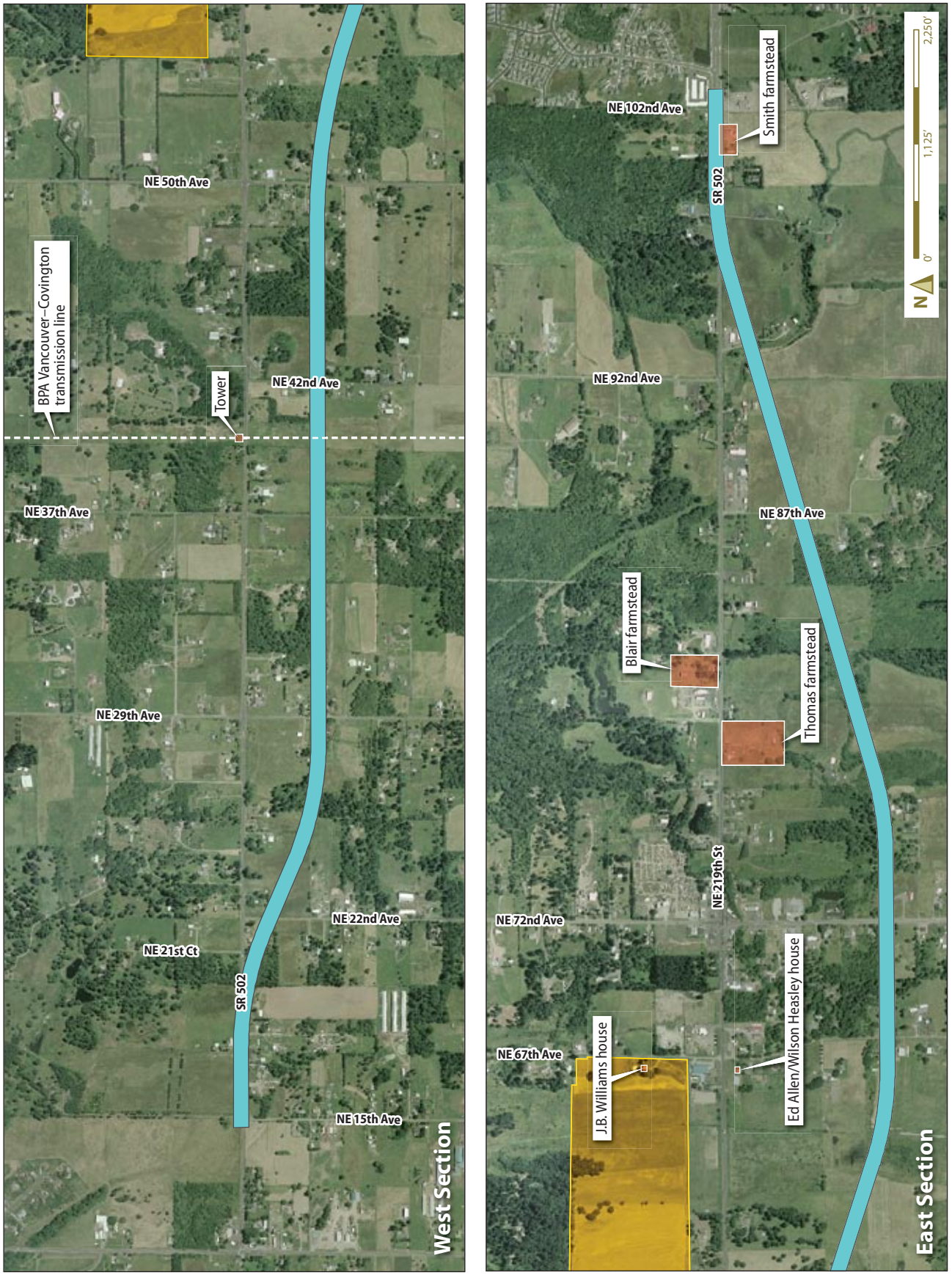

Exhibit 32: The Aqua Alternative and Section 4(f) properties

existing roadway, which would be retained as a local road, would remain on the north side of the structures. Noise levels would also be expected to increase slightly for the remaining structures of the Smith farmstead since the new roadway would be located closer to the house than its current alignment. However, the other remaining Section 4(f) properties (Ed Allen/Wilson Heasley house and Blair farmstead) would not have noise impacts as the new roadway would be located further from them than the existing SR 502 alignment.

- **Water quality:** Stormwater detention and treatment and wetland mitigation are proposed for any of the build alternatives, which would result in no net change of water quality for the Section 4(f) properties.

The proximity impacts of the Aqua Alternative will not result in a constructive use of any of the Section 4(f) properties.

4.8 How would the Transportation System Management/ Transportation Demand Management Alternative affect Section 4(f) property?

The Transportation System Management/Transportation Demand Management Alternative would not directly cause impacts to any historic properties. Improvements proposed under this alternative would be fully constructed within the existing right of way boundaries, so no land use changes would occur either.

The Transportation System Management/Transportation Demand Management Alternative would change access points to properties located adjacent to SR 502 including access to the Bonneville Power Administration Vancouver–Covington transmission line; relocation of the driveway access from SR 502 to NE 82nd Avenue for the Blair farmstead; relocation of the driveway access from SR 502 to NE 67th Avenue for the Ed Allen/Wilson Heasley house; and consolidation of driveway accesses for the Thomas farmstead and the Smith farmstead. It would not change access for any of the J.B. Williams house, as its existing access points do not intersect SR 502.

Proximity impacts that may occur to historic properties include:

- **Air quality:** The study area is in attainment for all National Ambient Air Quality Standards criteria pollutants, so it is considered to have air quality as good as or better than specified by these standards. Modeling shows that the alternatives would not cause a violation of the applicable National Ambient Air Quality Standards, and future carbon monoxide levels along the corridor are expected to be similar to today's levels. The alternatives are not expected to have significant

effects on levels of particulate matter since they would not result in substantial changes in the overall number of trips being made in the study area.

- **Visual quality:** The Transportation System Management/ Transportation Demand Management Alternative could have minor visual impacts to Section 4(f) properties. Expansion of the roadway within the existing right of way would require removal of vegetation within the existing right of way between the roadway and the Ed Allen/Wilson Heasley house, the Thomas farmstead, the Blair farmstead, and the Smith farmstead.
- **Noise:** The Transportation System Management/Transportation Demand Management Alternative would not be likely to cause increased noise levels for any of the Section 4(f) properties as the roadway would not be located any closer to these structures than the existing roadway.
- **Water quality:** Stormwater detention and treatment and wetland mitigation would likely be constructed due to the increase in impervious surface resulting from improvements in the right of way. Treatment and mitigation would result in no net change of water quality for the Section 4(f) properties.

The proximity impacts of the Transportation System Management/ Transportation Demand Management Alternative will not result in a constructive use of any of the Section 4(f) properties. This avoidance alternative is further evaluated in Section 6.2.

4.9 How would the No Build Alternative affect Section 4(f) property?

The No Build Alternative would not directly cause impacts to any historic properties. No improvements are proposed under this alternative, so there would be no expansion of right of way or other changes made to the existing facility. The No Build Alternative would not change access points to any properties.

Proximity impacts that may occur to historic properties include:

- **Air quality:** The study area is in attainment for all National Ambient Air Quality Standards criteria pollutants, so it is considered to have air quality as good as or better than specified by these standards. Modeling shows that the alternatives would not cause a violation of the applicable National Ambient Air Quality Standards, and future carbon monoxide levels along the corridor are expected to be similar to today's levels. The alternatives are not expected to have significant effects on levels of particulate matter since they would not result in

substantial changes in the overall number of trips being made in the study area.

- **Visual quality:** The No Build Alternative would not be expected to cause any visual changes to Section 4(f) properties as the existing facility would continue to be used in its current state.
- **Noise:** The No Build Alternative would not be likely to cause increased noise levels for any of the Section 4(f) properties as the roadway would remain in it current location.
- **Water quality:** Stormwater would remain untreated under the No Build Alternative and would continue to discharge as it does under existing conditions. This has a negative effect on water quality for the Section 4(f) properties.

The proximity impacts of the No Build Alternative will not result in a constructive use of any of the Section 4(f) properties. This avoidance alternative is further evaluated in Section 6.1.

5 Measures to minimize harm

5.1 How have any impacts to Section 4(f) property been minimized?

Impacts to the Section 4(f) properties have been minimized during the design and development of the alternatives. These minimization measures are summarized for each of the Section 4(f) properties as follows:

5.1.1 Bonneville Power Administration Vancouver–Covington transmission line

Design modifications were made to narrow the right of way width by seven feet for the Proposed Action to avoid causing impacts to the Bonneville Power Administration Vancouver–Covington transmission line tower on the north side of the existing SR 502 alignment. This change could also be made on the Purple and Red/Brown alternatives, thereby avoiding use of this Section 4(f) property. The shift in alignment for the Yellow Alternative would have to be greater since the right of way is aligned further north on that alternative; however, such a shift could likely be incorporated to avoid use of the property.

5.1.2 Ed Allen/Wilson Heasley house

The alignment of the Proposed Action is located far enough north that it would not cause impacts to the Ed Allen/Wilson Heasley House. Furthermore, the amount of right of way acquisition needed from the north and east edges of the parcel has been limited. This is also true for the Purple Alternative, and the White Alternative could potentially be shifted further north to avoid removal of the adjacent outbuilding and to maintain more distance between the roadway and the house.

5.1.3 J.B. Williams house

Removal of the J.B. Williams house is likely unavoidable under any of the alternatives other than the Transportation System Management/ Transportation Demand Management and No Build alternatives, as the entire J.B. Williams property, including the portion upon which the house is located, would likely be used as a mitigation site for project effects to wetlands and biological resources. The house site would be part of the larger wetland buffer. The mitigation plan would return the entire farm site to pre-settlement/ pre-agricultural conditions, with an active, healthy vegetated stream and floodplain area, forested uplands (mixed oak woodlands), and forested wetlands on the western portions of the site. The area around the location of the home would be restored to a mixed oak woodland. Mitigation measures that may further reduce impacts to the J.B. Williams house are described in Section 5.3.

5.1.4 Thomas farmstead

Impacts to the Thomas farmstead are unavoidable under the Proposed Action and the Yellow, Purple, and White alternatives, unless more severe effects to the Blair farmstead would be undertaken. The Blair farmstead and the Thomas farmstead, located on opposite sides of the roadway, are too close in distance to "thread" the roadway between the properties and avoid effects to both Section 4(f) properties, as illustrated in Exhibit 33. The houses on both farmsteads are close to the existing right of way. This makes it impossible to narrow the

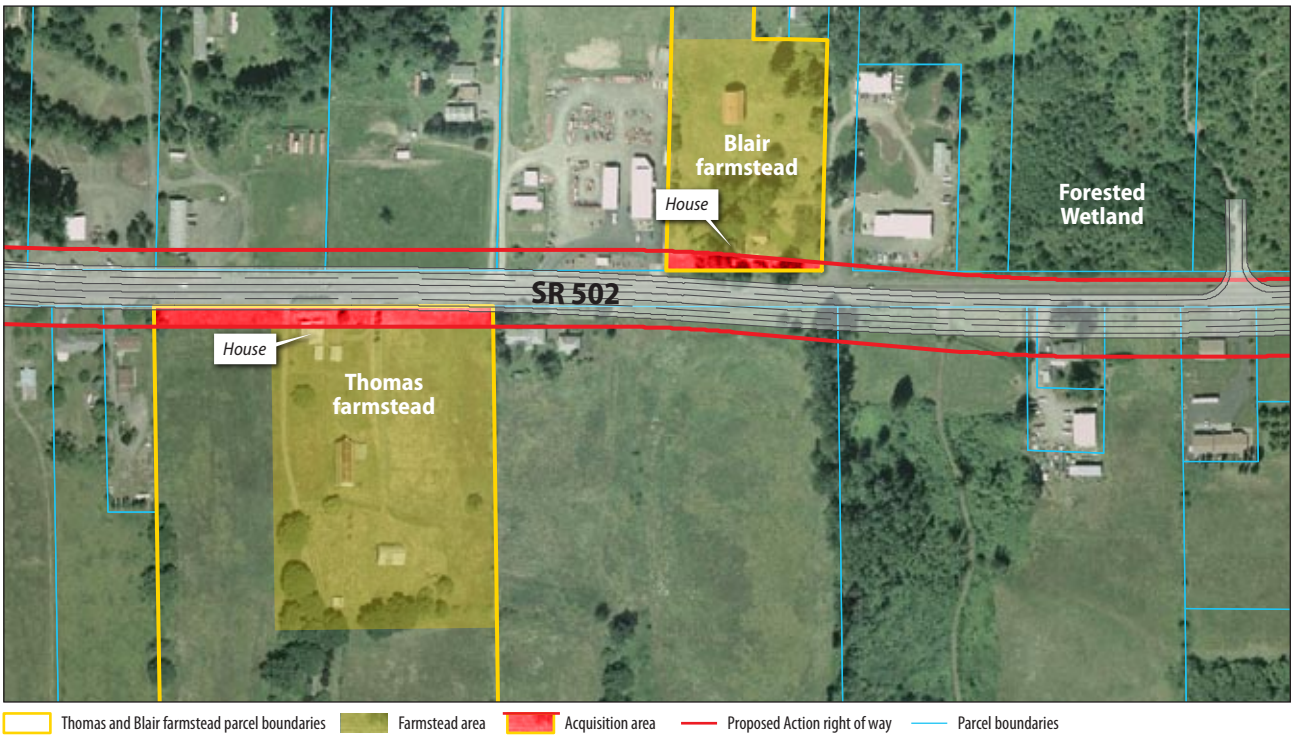

Exhibit 33: Proximity of Thomas farmstead, Blair farmstead, and forested wetland to Proposed Action

proposed right of way enough to avoid all effects to both the Blair and Thomas farmsteads while providing an alignment on which drivers can safely travel at the posted speed of 50 miles per hour with a consistent roadway width that accommodates an additional travel lane in each direction to enhance mobility, a median treatment to reduce the likelihood of collisions, a paved shoulder for pedestrians and bicyclists, and right of way to accommodate utilities and stormwater.

Both the Thomas farmstead and Blair farmstead represent significant historic farmsteads, so the value of the properties could not be used to determine which one warranted greater protection. Because these properties are both important resources and there is no way to avoid both while still providing the needed safety and mobility improvements defined in the project's purpose and need, other outstanding factors were considered in selecting the alignment of the Proposed Action:

- There is a high quality forested wetland on the north side of SR 502 slightly east of the Blair farmstead. In order to avoid impacts to this ecologically important natural resource, the roadway can be shifted south through this section of SR 502;
- Impacts to the Thomas farmstead can be minimized through the mitigation measures described in Section 5.3, including relocation of the house, which would preserve the overall historic context of the farmstead; and
- Impacts to the Blair farmstead would be minimal without any impacts on structures as described in Section 5.1.5.

For these reasons, the Proposed Action was shifted south through this section of SR 502, consequently resulting in an adverse effect to the house located on the Thomas farmstead. Mitigation measures that may further reduce impacts to the Thomas farmstead are described in Section 5.3.

The Aqua Alternative could potentially be shifted further south; however, the roadway would still cross the parcel on which the farmstead is located, changing the setting and resulting in a *de minimis* impact (if the Federal Highway Administration determined and the Washington State Department of Archaeological and Historic Preservation concurred that this is No Adverse Effect under Section 106).

5.1.5 Blair farmstead

The roadway of the Proposed Action was shifted south to avoid the house and other structures on the Blair farmstead and to minimize removal of vegetation between the structures and the roadway.

Furthermore, steeper slopes (4 to 1 dimension, rather than the typical 6 to 1 dimension) can be utilized for the roadside ditch to reduce the amount of vegetation removal, resulting in a *de minimis* impact.

Vegetation, hedgerows, trees and/or a man made barrier could also be used to provide visual screening from the roadway at the Blair farmstead. Since the introduction of barriers could constitute an introduction of a non-compatible element to the setting of a historic structure, barriers or retaining walls would be designed in consultation with Washington State Department of Transportation cultural and visual resources specialists and the Washington State Department of Archaeology and Historic Preservation historical architecture specialists.

A southerly shift and steeper slopes also could be applied to the Purple and Yellow alternatives. However, the roadway shift to minimize the impact on the Blair farmstead would be linked to the roadway effects on the Thomas farmstead, which is on the south side of SR 502 less than one-quarter mile west, as shown in Exhibit 33 and described in Section 5.1.4. The width of the roadway and ditch improvements to the Proposed Action and the Yellow, Purple, and White alternatives make it impossible to avoid or have no adverse effect on both the Blair and Thomas farmsteads.

The Red/Brown and Blue alternatives could be shifted north to avoid cutting through the northeast corner of the historically significant Blair farmstead, however, both alternatives would still require right of way acquisition from the parcel and result in a change of setting to the farmstead, resulting in a *de minimis* impact (if the Federal Highway Administration determined and the Washington State Department of Archaeological and Historic Preservation concurred that this is No Adverse Effect under Section 106).

5.1.6 Smith farmstead

Design modifications were made to narrow the right of way width for the Proposed Action by eight feet to avoid causing impacts to Smith farmstead structures on the south side of the SR 502 alignment, resulting in a *de minimis* impact due to vegetation removal. A similar change could also be made for the Yellow, Purple, White, Red/Brown, Orange, Blue, and Aqua alternatives, thereby reducing the use of this Section 4(f) property to a *de minimis* impact for these alternatives.

5.2 How can any impacts to Section 4(f) property be further mitigated?

Under the requirements of 49 USC Section 303, impacts on Section 4(f) properties that cannot be avoided must be minimized, or mitigated,

to the greatest possible extent. The combination of these measures would result in a reduction in the effect to the historic properties. This section presents measures to mitigate or minimize harm that would occur to the J.B. Williams house and the Thomas farmstead as a result of the Proposed Action. These mitigation measures are included in the memorandum of agreement signed by the Federal Highway Administration, Washington State Department of Transportation, Washington State Historic Preservation Officer, the Chinook Tribe, and the Cowlitz Indian Tribe on January 14, 2010 (see Appendix C, *Memorandum of Agreement for Historic and Archaeological Resources*, of the final environmental impact statement).

- The J.B. Williams house and the Thomas farmstead shall be recorded so that there is a permanent record of their existence. Washington State Department of Transportation shall contract with a qualified archival photographer and historian to prepare photographic documentation and an historical narrative overview of both properties according to the National Park Service (Historic American Buildings Survey/Historic American Engineering Record) and Level II Washington State Department of Archaeology and Historic Preservation guidelines for documenting historic properties. Washington State Department of Transportation shall ensure that the documentation of these properties is completed and accepted by the Washington State Department of Archaeology and Historic Preservation (and distributed to local repositories as appropriate) prior to any demolition or alteration of these properties. The documentation for the Thomas farmstead will include a detailed site plan that records the original orientation and spatial relationship of the farmhouse, the barns and the outbuildings.
- An interpretive display consisting of one to two panels of text and illustrations shall be prepared and installed at the J.B. Williams property, at the previous location of the house, facing toward the west (the direction of the historic farmland and the new wetland mitigation site). The content of the panels shall be determined in consultation with Washington State Department of Archaeology and Historic Preservation, the Clark County Historic Preservation Commission, and the Cowlitz and Chinook Tribes.
- Washington State Department of Transportation will consult with a qualified building mover to determine if the Thomas farmhouse can be relocated elsewhere on the property remainder. If the structure can be relocated, Washington State Department of Transportation will consult with Washington State Department of Archaeology and Historic Preservation and the City of Battle Ground, Washington

to develop and implement a building relocation plan, site plan and building rehabilitation plan (if needed) in accordance with the guidelines recommended in John Obed Curtis' *Moving Historic Buildings*. The building relocation plan shall incorporate the relocation of the farmstead buildings in orientation and spatial relationship that matches the historic orientation and spatial relationship as closely as possible.

- If the Thomas farmhouse can be relocated and the property owner agrees to relocate the structure, Washington State Department of Transportation will provide compensation to the property owner to facilitate the relocation, including the following:
  - Reconnect all necessary utility hook-ups, including electrical, natural gas, water, and sanitary sewer (or septic system) at the relocation site.
  - Secure all necessary permits and approvals of the proposed building relocation route (if needed).
  - Coordinate temporary relocation of overhead utilities and fences as needed to accommodate the building relocation.
- Washington State Department of Transportation shall ensure that any damage incurred during the relocation of the Thomas farmhouse is repaired and that the condition of the building shall be the same or better when the relocation is complete.
- Contingency plan in the event that the Thomas farmhouse cannot be relocated: If it is not feasible to move the house, then Washington State Department of Transportation shall ensure that, prior to demolition, a qualified building materials recycling company will remove construction materials and interior fixtures from the house for recycling and/or reuse in other construction projects. If appropriate, decorative or interpretive building elements will be offered to local historical societies/museums for use in interpreting the agricultural history of the region.

6 Avoidance alternatives

As demonstrated in the following sections, the only two avoidance alternatives (that avoid the use of any Section 4(f) property) are the No Build Alternative and the Transportation System Management/ Transportation Demand Management Alternative, and neither of these alternatives is a feasible and prudent avoidance alternative (see definition in Section 1.1).

6.1 Is the No Build Alternative a feasible and prudent avoidance alternative?

The No Build Alternative, while technically feasible as it requires no additional design or construction, can be rejected as not prudent under the Section 4(f) standard. This alternative fails to meet the project's purpose and need of improving safety and mobility on SR 502. Under the No Build Alternative, by 2033 traffic volume is projected to triple in number, and travel times could triple or quadruple compared to today. Further, the No Build Alternative would not implement any new access management improvements – including a center median treatment and limited driveway access points – so it would not improve safety along the corridor. Chapter 3, *Comparison of the Alternatives – Safety and Mobility* of the final environmental impact statement presents additional detail on the safety and mobility of the No Build Alternative and the Proposed Action.

The No Build Alternative would be expected to create extraordinary operational problems with intersections along the corridor operating at failing levels of service in 2015 and in 2033. These severe traffic problems could have ramifications for the economic viability of businesses along the corridor as well.

6.2 Are any other alternatives a feasible and prudent avoidance alternative?

The Transportation System Management/Transportation Demand Management Alternative is the only alternative, other than the No Build Alternative, that would avoid the use of Section 4(f) property.

As described in Section 2.3.8, improvements proposed under the Transportation System Management/Transportation Demand Management Alternative would be fully constructed within the existing right of way boundaries. For that reason, this alternative would avoid the use of Section 4(f) property, as no additional right of way acquisition would be required. As demonstrated in Section 4.9, its indirect proximity impacts are not so severe as to cause a constructive use.

Modeling of the Transportation System Management/Transportation Demand Management Alternative shows that the SR 502 Corridor will experience substantial delays at all intersections in the 2033 horizon, and show little or no improvements in the level of service as compared with the No Build Alternative under either alternative (with or without substantially expanded transit service). This design would result in a corridor that operates at grid lock conditions and would not result in substantial mobility or safety improvements, thereby failing to meet the purpose and need of the project, which means that this alternative,

while technically feasible, fails as a feasible and prudent alternative for the project. More details on the analysis of the Transportation System Management/Transportation Demand Management Alternative can be found in Appendix S, *Transportation Discipline Report* of the final environmental impact statement.

7 Alternatives analysis and measures to minimize harm

7.1 Which of the build alternatives will cause the least overall harm?

Exhibit 34 presents a comparative analysis of impacts to Section 4(f) properties, which were analyzed in accordance with 23 CFR 774.3 for each alternative.

While the Red/Brown, Blue, and Aqua alternatives would have fewer impacts to Section 4(f) property than the Pink Alternative (Proposed Action), the Pink Alternative would require substantially fewer impacts to wetlands than those alternatives. The primary trade-offs in the selection of the Pink Alternative as the Proposed Action are the impacts to Section 4(f) property in exchange for much less extensive impacts to wetlands. Thus, as demonstrated in the Exhibit 34, the Pink Alternative causes the least overall harm to Section 4(f) properties and other resources not protected by Section 4(f).

Exhibit 34: Analysis of Alternatives

Alternative	Uses Section 4(f) property	Feasible and prudent	Impact to Section 4(f) property before minimization and mitigation	Net impact to Section 4(f) property after minimization and mitigation	Relative net harm to Section 4(f) property after mitigation	Magnitude of impacts to resources not protected by Section 4(f)	Overall prudent alternative
Yellow	Yes	Yes	J.B. Williams house (Adverse Effect) Blair farmstead (Adverse Effect) Smith farmstead (Adverse Effect)	J.B. Williams house (Adverse Effect) Blair farmstead (Adverse Effect) Smith farmstead (No Adverse Effect)	Equal to Proposed Action	• Displace 11–17 businesses • Displace 15–25 residences • Mitigate 32–34 acres of wetland fill • 5 perpendicular stream crossings • No stream channel realignment • Disturbance of 1 high risk, 4 moderate risk, and 4 low risk potentially contaminated sites	More overall impacts to important resources than the Proposed Action
Purple	Yes	No	J.B. Williams house (Adverse Effect) Thomas farmstead (Adverse Effect) Blair farmstead (Adverse Effect) Smith farmstead (Adverse Effect)	J.B. Williams house (Adverse Effect) Thomas farmstead (Adverse Effect)* Blair farmstead (No Averse Effect)* Smith farmstead (No Adverse Effect)	Equal to Proposed Action	• Displace 8–14 businesses • Displace 14–24 residences • Mitigate 26–28 acres of wetland fill • 4 perpendicular stream crossings • 310 linear feet of stream channel realignment for parallel stream crossing, could degrade critical fish habitat • Disturbance of 1 high risk, 4 moderate risk, and 4 low risk potentially contaminated sites	More overall impacts to important resources than the Proposed Action
White	Yes	No	J.B. Williams house (Adverse Effect) Thomas farmstead (Adverse Effect) Smith farmstead (Adverse Effect)	J.B. Williams house (Adverse Effect) Thomas farmstead (Adverse Effect) Smith farmstead (No Adverse Effect)	Equal to Proposed Action	• Displace 10–16 businesses • Displace 26–36 residences • Mitigate 21–23 acres of wetland fill • 4 perpendicular stream crossings • 400 linear feet of stream channel realignment for parallel stream crossing, could degrade critical fish habitat • Disturbance of 1 high risk, 4 moderate risk, and 4 low risk potentially contaminated sites	More overall impacts to important resources than the Proposed Action
Red/ Brown	Yes	No	J.B. Williams house (Adverse Effect) Smith farmstead (Adverse Effect)	J.B. Williams house (Adverse Effect) Smith farmstead (No Adverse Effect)	Lower impact than Proposed Action	• No business displacements, but bypasses Dollars Corner businesses • Displace 20–30 residences • Mitigate 45–47 acres of wetland fill • 5 perpendicular stream crossings • No stream channel realignment • Disturbance of 4 moderate risk and 5 low risk potentially contaminated sites	More overall impacts to important resources than the Proposed Action

Alternative	Uses Section 4(f) property	Feasible and prudent	Impact to Section 4(f) property before minimization and mitigation	Net impact to Section 4(f) property after minimization and mitigation	Relative net harm to Section 4(f) property after mitigation	Magnitude of impacts to resources not protected by Section 4(f)	Overall prudent alternative
Pink (Proposed Action)	Yes	Yes	J.B. Williams house (Adverse Effect) Thomas farmstead (Adverse Effect) Blair farmstead (Adverse Effect) Smith farmstead (Adverse Effect)	J.B. Williams house (Adverse Effect) Thomas farmstead (Adverse Effect) Blair farmstead (No Adverse Effect)* Smith farmstead (No Adverse Effect)	Equal to Yellow, Purple, & White alternatives	• Displace 22-28 businesses • Displace 25-35 residences • Mitigate 9–14 acres of wetland fill • 5 perpendicular stream crossings • No stream channel realignment • Disturbance of 1 high risk, 4 moderate risk, and 4 low risk potentially contaminated sites	Least overall impacts to important resources
Blue	Yes	No	J.B. Williams house (Adverse Effect) Blair farmstead (No Adverse Effect) Smith farmstead (Adverse Effect)	J.B. Williams house (Adverse Effect) Blair farmstead (No Adverse Effect) Smith farmstead (No Adverse Effect)	Lower impact than Proposed Action	• Displace 0–4 businesses and bypasses Dollars Corner businesses • Displace 17–27 residences • Mitigate 65–67 acres of wetland fill • 5 perpendicular stream crossings • 0 feet of stream channel realignment • Disturbance of 4 moderate risk and 4 low risk potentially contaminated sites	More overall impacts to important resources than the Proposed Action
Aqua	Yes	No	J.B. Williams house (Adverse Effect) Thomas farmstead (No Adverse Effect) Smith farmstead (Adverse Effect)	J.B. Williams house (Adverse Effect) Thomas farmstead (No Adverse Effect) Smith farmstead (No Adverse Effect)	Lower impact than Proposed Action	• Displace 0–4 businesses and bypasses Dollars Corner businesses • Displace 7–17 residences • Mitigate 69–71 acres of wetland fill • 5 perpendicular stream crossings • 0 feet of stream channel realignment • Disturbance of 24 moderate risk and 3 low risk potentially contaminated sites	More overall impacts to important resources than the Proposed Action
TSM/TDM	No	No	None	None	Least impact of alternatives considered	• No business displacements • No residential displacements • No wetland mitigation required • 5 perpendicular stream crossings • No stream channel realignment • No disturbance of potentially contaminated sites	Less overall impact than the Proposed Action, but not prudent
No Build	No	No	None	None	Least impact of alternatives considered	• No business displacements • No residential displacements • No wetland mitigation required • 5 perpendicular stream crossings • No stream channel realignment • No disturbance of potentially contaminated sites	Less overall impact than the Proposed Action, but not prudent

*Mitigation could also be taken to reduce the Thomas Farmstead to No Adverse Effect; however, the Blair Farmstead would then be an Adverse Effect. Because of the close proximity of these two properties, it is not possible to avoid removal of any structures on both properties.

8 Mill Creek North basin mitigation site evaluation

The Proposed Action would require a variety of impacts to environmental resources to construct the project, including adverse effects to wetlands and streams in the headwaters of the Mill Creek North basin. The impacted wetlands include Category I wetlands, which are considered to be of the highest ecological value. Category I wetlands demonstrate important water quality benefits, provide significant hydrological functions, including flood storage, and provide critical wildlife habitat for a variety of species. The streams expected to be affected by the Proposed Action include stretches of designated critical fish habitat.

This section of the final Section 4(f) evaluation identifies the specific characteristics needed for a potential mitigation site for the SR 502 Corridor Widening Project and identifies where mitigation sites could feasibly be located. The identified sites are first screened for their ability to meet the basic site requirements. Following this, a second-level evaluation identifies which sites could realistically be implemented as mitigation sites. This process identifies the mitigation sites which are both feasible and prudent.

The proposed mitigation site, referred to throughout this evaluation as "Site 2," includes an eligible Section 4(f) property which would have to be removed. Therefore, another site was identified for consideration, referred to throughout this evaluation as "Site 1," which is the avoidance alternative. Site 1 contains no Section 4(f) property that would be affected. Other avoidance alternatives were sought, as evidenced in the discussion of areas removed from consideration, however, none were found.

8.1 Mitigation site purpose and need

The purpose for the mitigation site is to provide a combination of in-kind wetland rehabilitation and creation that meets the federal, state, and local mitigation requirements for the effects of the Proposed Action and to provide rehabilitation and/or creation of critical fish habitat.

In order to construct the Build Alternative, Washington State Department of Transportation would need to obtain permits related to its wetland and stream impacts from the US Army Corps of Engineers, US Fish and Wildlife Service, National Oceanic and Atmospheric Administration National Marine Fisheries Service, Washington State Department of Ecology, Washington State Department of Fish and Wildlife, Clark County, and City of Battle Ground. Under the laws and regulations implemented by these agencies, in order to construct the Build Alternative, Washington State Department of Transportation

would be legally obligated to provide a mitigation site within the Mill Creek basin to mitigate the effects in that basin.

Washington State Department of Transportation cannot meet the overall project purpose and need of improving mobility and safety without also meeting the mitigation site purpose and need because the mitigation site is a key component in making construction of the Build Alternative possible, thus satisfying the project purpose and need.

8.2 Evaluation approach

An avoidance alternative is feasible and prudent if it "does not cause other problems of a magnitude that substantially outweighs the importance of protecting the Section 4(f) property" (23 CFR 774.17). An alternative is imprudent if it causes impact of "extraordinary magnitude" and involves "unique problems" or "unusual factors." [Quotes from *Citizens to Preserve Overton Park v. Volpe*, 401 U.S. 402 (1971)]. In addition, the regulations state that, in evaluating the "importance of protecting the Section 4(f) resource," it is appropriate to consider "the relative value of the resource to the preservation purpose of the statute". The US Department of Transportation notes that:

> A sliding scale approach to the magnitude of harm is proposed, because it is appropriate to consider the value of the individual Section 4(f) property in context. For example, some historic sites are significant beyond doubt and are permanently protected. Such properties should be protected absent extraordinary problems with the avoidance alternatives. Other historic sites of less significance, or which are likely to be legally destroyed or developed by their owners in the near future, may be outweighed by relatively less severe problems with the avoidance alternatives. [71 Fed. Reg. 42,613 (July 27, 2006)]

An alternative is not feasible "if it cannot be built as a matter of sound engineering judgment" (23 CFR 774.17). Deciding whether an alternative is prudent requires the evaluation of a variety of factors which, singly or together, support a finding of imprudence. The definition states that:

(3) An alternative is not prudent if:
- (i) It compromises the project to a degree that is unreasonable to proceed with the project in light of its stated purpose and need;
- (ii) It results in unacceptable safety or operational problems;
- (iii) After reasonable mitigation, it still causes:
  - (A) Severe social, economic, or environmental impacts;
  - (B) Severe disruption to established communities;

(C) Severe disproportionate impacts to minority or low-income populations; or
(D) Severe impacts to environmental resources protected under other Federal statutes;

(iv) It results in additional construction, maintenance, or operational costs of an extraordinary magnitude;

(v) It causes other unique problems or unusual factors; or

(vi) It involves multiple factors in paragraphs (3)(i) through (3)(v) of this definition, that while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.(23 CFR 774.17)

8.3 Basic site requirements

In order to meet the mitigation site purpose and need, addressing the affects of the Proposed Action, the mitigation site must have the following characteristics:

- Located in headwaters of the Mill Creek North basin, where the Mill Creek North stream begins, so that the impacts can be mitigated within the same landscape position in the same basin. The extent of the headwaters area is confined to land of approximately the same elevation as the initial part of the stream.
- Provide at least 26 acres of degraded riparian headwater wetlands suitable for rehabilitation of stream-connected wetlands, and at least six acres suitable for creation of stream-connected wetlands plus buffer area for these wetlands, or another combination of rehabilitation and creation area that meets the federal, state, and local wetland requirement for the impacts of the Proposed Action.
- Provide in-kind similar function to the impacted riverine Category I wetlands. Mitigation for Category I wetlands must exhibit wetlands of sufficient size, in the appropriate landscape position, and appropriate hydrogeomorphic classification to provide water quality, hydrologic function, and wildlife habitat functions. The site must be directly connected to Mill Creek North or its floodplain to provide in-kind functions.
- Provide the opportunity for creation or rehabilitation of critical fish habitat to mitigate impacts of the Proposed Action on designated critical fish habitat.

8.4 Areas removed from consideration – areas not feasible or prudent for consideration

The only area in which a mitigation site can be located is within the Mill Creek North basin as shown in Exhibit 35. This is because all of the wetland impacts take place within this basin. However, several areas

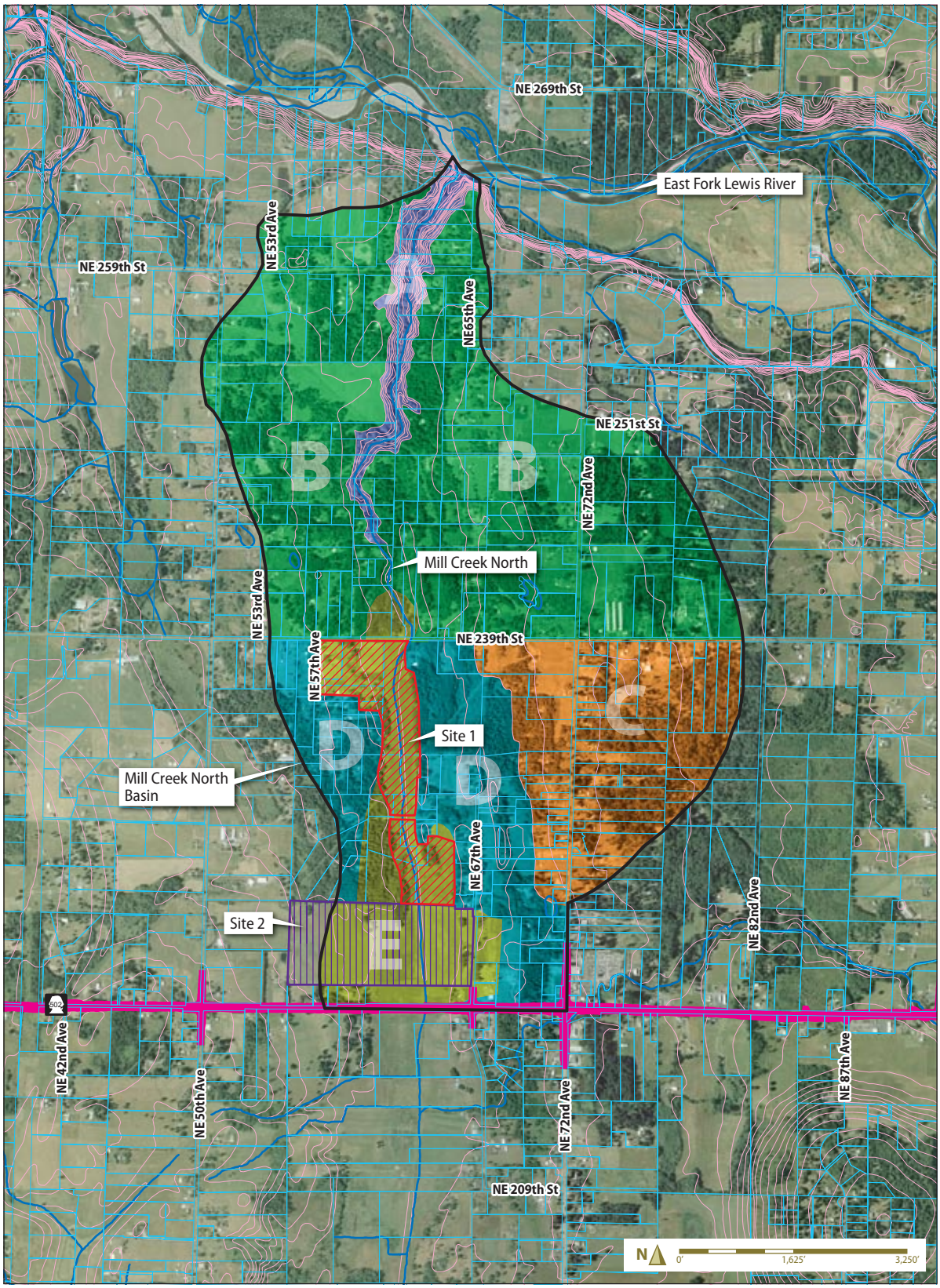

Exhibit 35: Areas considered as locations for mitigation sites within the Mill Creek North basin

within the basin are not suitable as mitigation sites, and these areas are shaded as Areas A through D on Exhibit 35. The reasons for their lack of suitability are described below.

- **Area A.** North of NE 244th Street, Mill Creek North flows through a deep forested ravine and the topography adjacent to the creek becomes very steep, as shown by the contour lines on Exhibit 35. This area is identified as Area A on Exhibit 35. Creation of Category I riverine wetlands directly connected to the creek in this area is not practicable due to the very steep slopes and extensive amount of excavation that would be required to create the acreage needed adjacent to the creek, removing significant amounts of mature riparian vegetation and potentially adversely affecting the creek through additional streambank degradation. Wetland rehabilitation is not practicable due to the relative lack of existing riverine wetlands in this area.

  The Proposed Action will affect wetlands and streams in the headwaters of the Mill Creek North basin. Headwater areas where streams originate are particularly important because they flow downstream into rivers and lakes. Most headwaters provide cold, clean water with abundant oxygen that supports a variety of fish species. This cold, clean water flows downstream into the main water bodies and contributes to the health of those larger waterbodies. In order to provide in-kind mitigation for the wetlands affected by the project, the selected mitigation site needs to be located within the headwaters of the Mill Creek North basin to best mitigate for the effects of the Proposed Action. Area A is located at the bottom (or downstream) area of the watershed, meaning that it would not be possible or practicable to provide similar headwater function in the same landscape position as the impacted wetlands in the upper portions of the watershed.

  Therefore, this area would not provide a mitigation site that could meet the mitigation site purpose and need, and therefore, Area A was removed from consideration.

- **Area B.** The land surrounding Area A north of NE 239th Street in the Mill Creek North basin is identified as Area B on Exhibit 35. Area B is composed of the forested upland terraces that are significantly higher in elevation (30 to 70 feet) than the Mill Creek North. Historically this area may have had isolated wetlands present, but the topography indicates that no stream-connected wetlands would have naturally existed in this area. Use of land in Area B as a mitigation site would require excavation to about 30 to 50 feet in depth in order to provide wetlands that connect to Mill Creek North. Excavation

of this magnitude for more than 30 acres of wetland creation and mitigation is not practicable for construction of a mitigation site.

Further, like Area A, Area B is located downstream of the headwaters of the basin, so it is not situated in the correct landscape position for mitigation of the Category I headwater wetlands affected by the project. In addition, portions of Area B contain mature oak woodlands, which are a valuable and limited ecosystem type that supports an abundance of mammals, birds, reptiles, amphibians, and invertebrates with feeding, nesting, and breeding habitat. Oak woodlands are identified as a state priority habitat type. Many invertebrate species are found exclusively within this habitat type. Because oak woodlands are an important ecosystem component, it would not be appropriate to convert these areas to a different ecosystem type (wetlands) or to remove the trees, many of which are more than 150 years old.

As the aerial photo in Exhibit 35 illustrates, there is a utility corridor for a natural gas line which runs through many of the parcels in Area B, and could logistically complicate the design of a mitigation site since excavation would be very restricted within the utility corridor. In addition, NE 72nd Avenue is a major road which runs through the eastern portion of Area B and could act as a barrier to hydraulic connectivity of wetlands within a mitigation site.

Therefore, this area would not provide a mitigation site that would meet the mitigation site purpose and need, and therefore, Area B was removed from consideration.

- **Area C.** Land south of NE 239th Street in the eastern portion of the contributing basin is 10 to 40 feet higher in elevation than Mill Creek North. This area is identified as Area C on Exhibit 35. Like Areas A and B, this land would require more excavation than areas with comparable elevations to the creek, and it is not located in the headwaters of the Mill Creek North basin.

  Like Area B, portions of Area C are also not reasonable for consideration as a mitigation site because they contain oak woodlands, which are a valuable habitat type occurring in limited extent, and it would not be appropriate to convert these areas to a different ecosystem type. There is a utility corridor for a natural gas line which runs through many of the parcels in Area C and could complicate design of the mitigation site.

  In addition, most of Area C is the most urbanized portion of the watershed, and is developed as a rural residential area. NE 72nd Avenue runs through Area C and could act as a barrier to hydraulic

connectivity of wetlands within a mitigation site. Further, Area C is divided into many small parcels with homes on them, most of the parcels only five acres in size, which would make locating a mitigation site in this area difficult without requiring a large number of residential relocations.

Therefore, Area C would not provide a mitigation site that could meet the mitigation site purpose and need, and therefore, it was removed from consideration.

- **Area D.** Land south of NE 239th Street in the western portion of the basin, identified as Area D, contains the largest contiguous stands of mature oak woodlands. These woodlands are a valuable habitat type occurring in limited extent, and it would not be appropriate to convert these areas to a different ecosystem type for wetland mitigation because of the valuable ecosystem benefits these areas provide. Area D is slightly higher in topography than the creek, so additional excavation would be required in order to provide stream-connected wetlands.

  Like Areas B and C, Area D includes a utility corridor for a natural gas line, which would complicate design of a mitigation site in this area. Further, any mitigation site that would be located in Area D would be constrained by the proximity of the creek to the western edge of the Mill Creek North basin.

  Therefore, Area D would not provide a mitigation site that would meet the mitigation site purpose and need, and therefore, it was removed from consideration.

8.5 Potential wetland mitigation sites

The elimination of Areas A, B, C and D leaves the remaining area along the headwaters portion of Mill Creek North, shown on Exhibit 35 as Area E. Most of this area might be termed the "wetland contributing basin" for Mill Creek North, where stream-connected wetlands were historically present and fed into the creek. Rehabilitation of stream-connected wetlands could be feasibly implemented in Area E. Area E also includes slightly more upland areas without oak woodlands where wetlands were not historically present, but where wetland creation could potentially occur if the created wetlands were connected to the rehabilitated stream-connected wetlands within Area E.

Washington State Department of Transportation analyzed geographical information system data and performed field visits to identify potential sites for mitigation. Within Area E, two potential mitigation sites were identified that could meet the basic site requirements outlined above, and therefore meet the mitigation site purpose and need:

- Site 1, consisting of portions of 14 parcels totaling 66 acres of land usable for mitigation activities (wetland rehabilitation, creation, and required buffers) located along Mill Creek North south of NE 239th Street and immediately north of Site 2 as shown in Exhibit 37. This site is bisected by a parcel that provides the only driveway access to a number of parcels located to the west of Site 1, which local homeowners rely upon to gain access to their residences.
- Site 2, consisting of a single 68-acre parcel (the J.B. Williams property) located south of Site 1 in the headwaters of Mill Creek North as shown in Exhibit 38. One-fifth of this site (14 acres) is located beyond the boundaries of the Mill Creek North basin, but would also contribute to mitigating the project's effects on streams and wetlands through its use for wetland mitigation activities in the adjacent basin.

8.6 Mitigation site evaluation of basic site requirements

Sites 1 and 2 were evaluated for their abilities to meet the basic site requirements outlined in Section 8.2 above. The results of this evaluation are summarized in Exhibit 36 and discussed in Sections 8.6.1 and 8.6.2.

Exhibit 36: Summary of basic site requirement evaluation

Basic site requirement screening criteria	Site 1	Site 2
Is site located in the same basin as the impacts (Mill Creek North)?	Yes	Yes
Does site provide 26 acres of wetland rehabilitation plus buffer (or combination with creation)?	Yes (23 ac)	Yes (27 ac)
Does site provide six acres of creation including buffer (or combination with rehabilitation)?	Yes (10 ac)	Yes (15 ac)
Will the site provide in-kind, similar function to Category I impacted riverine wetlands (headwater/floodplain)?	Yes	Yes
Is site directly connected to Mill Creek North or its floodplain?	Yes	Yes
Will the site provide opportunity to create/enhance essential fish habitat?	Yes	Yes

8.6.1 Evaluation of Site 1

- **Located in headwaters of the Mill Creek North basin, where the Mill Creek North stream begins, so that the impacts can be mitigated within the same landscape position in the same basin. The extent of the headwaters area is confined to land of approximately the same elevation as the initial part of the stream.**

  Site 1 is located in the headwaters of the Mill Creek North basin and is therefore located in an appropriate landscape position for mitigation of the impacts of the Proposed Action.

- **Provide at least 26 acres of degraded riparian headwater wetlands suitable for rehabilitation of stream-connected wetlands and at least six acres suitable for creation of stream-connected wetlands**

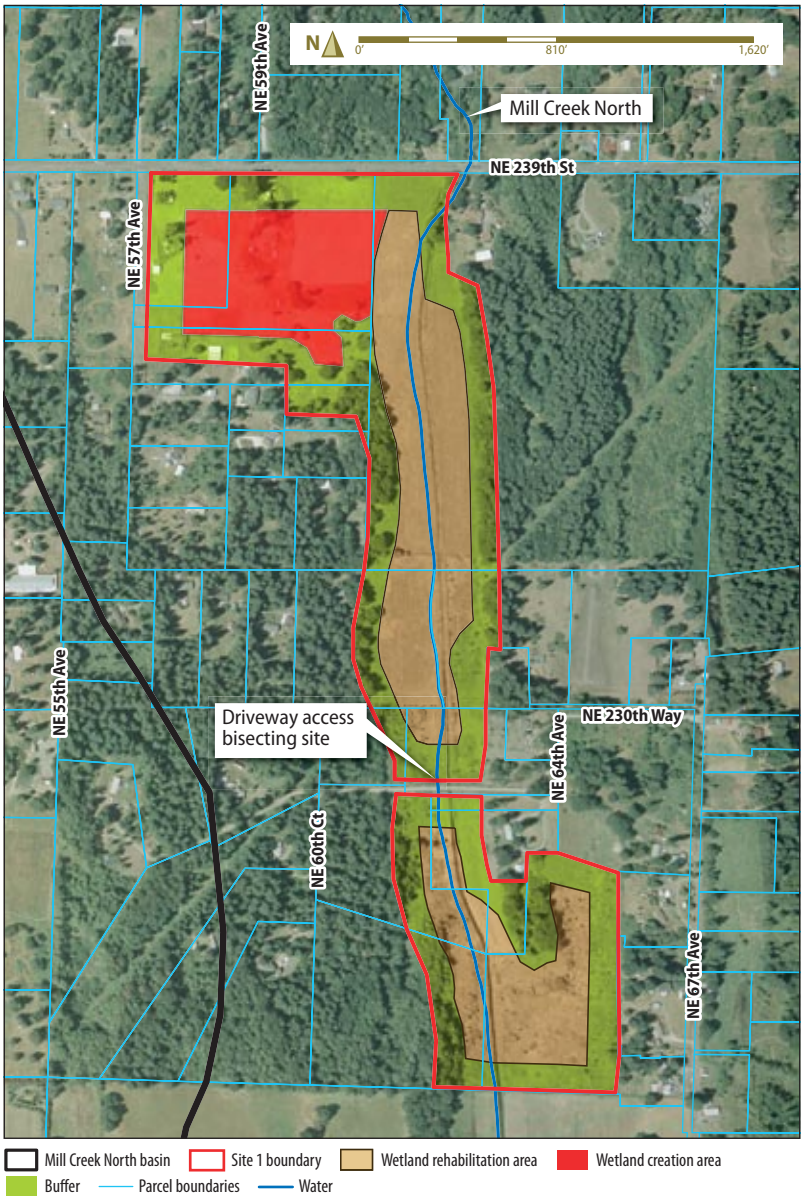

Exhibit 37: Site 1 preliminary mitigation plan

plus buffer area for these wetlands, or another combination of rehabilitation and creation area that meets the federal, state, and local wetland requirement for the impacts of the Proposed Action.

Site 1 can only provide 23 acres of wetland rehabilitation plus the required buffers due to the site constraints of wooded areas and residences adjacent to the site (Exhibit 37). This limitation on rehabilitation means that a total of 10 acres of wetlands would need to be created in order to satisfy federal, state, and local mitigation requirements. Site 1 is able to accommodate this 10 acres of wetland creation plus the required buffers. Therefore, this site meets the required acreage for wetland rehabilitation and creation and would provide the needed buffers around these areas.

- **Provide in-kind similar function to the impacted riverine Category I wetlands. Mitigation for Category I wetlands must exhibit wetlands of sufficient size, in the appropriate landscape position, and hydrogeomorphic classification to provide water quality, hydrologic function, and wildlife habitat functions. The site must be directly connected to Mill Creek North or its floodplain to provide in-kind functions.**

  Category I riverine wetlands demonstrate a host of unique characteristics. These wetlands are connected to streams, in this case Mill Creek North, which means they have the potential to improve water quality by slowing surface water flow with depressions, seasonal ponding, and providing filtration through wetland vegetation. Category I wetlands are also distinguished by their ability to provide important hydrologic functions that reduce flooding and

stream degradation through their ability to capture and store a large portion of the surface water falling in the basin. Finally, Category I wetlands provide critical habitat functions for a variety of fish and wildlife through their vegetation structure and richness, their types of water regimes, interspersion of vegetation types, connectivity to other habitat areas, and other special habitat features such as large woody debris and standing snags.

The wetlands identified for rehabilitation within Site 1 are located within the floodplain and are connected to Mill Creek North. Currently, they are in degraded condition, so they fail to provide the full benefits of Category I wetlands in their existing state. However, if appropriately rehabilitated, these wetlands could provide the water quality, hydrologic functions, and wildlife habitat that characterize properly functioning, high quality Category I wetlands. Similarly, the wetlands that would be created in Site 1 would connect to the rehabilitated wetlands and Mill Creek North, and they could also be designed to provide Category I wetland functions. Therefore, Site 1 meets the basic site requirement for providing similar in-kind Category I wetland functions.

- **Provide the opportunity for creation or rehabilitation of critical fish habitat to mitigate impacts of the Proposed Action on designated critical fish habitat.**

  Mill Creek North runs through Site 1. The stream banks of the creek are degraded through this area, and the creek has been straightened and ditched for agricultural purposes. This presents an opportunity for rehabilitation of fish habitat through stream enhancement projects such as riparian plantings and creating stream meanders. Therefore Site 1 meets the requirement to provide the opportunity for mitigation of critical fish habitat.

8.6.2 Evaluation of Site 2

- **Located in headwaters of the Mill Creek North basin, where the Mill Creek North stream begins, so that the impacts can be mitigated within the same landscape position in the same basin. The extent of the headwaters area is confined to land of approximately the same elevation as the initial part of the stream.**

  Mill Creek North originates just upstream of Site 2, so Site 2 is located in the headwaters of the Mill Creek North basin, and is therefore located in an appropriate landscape position for mitigation of the impacts of the Proposed Action.

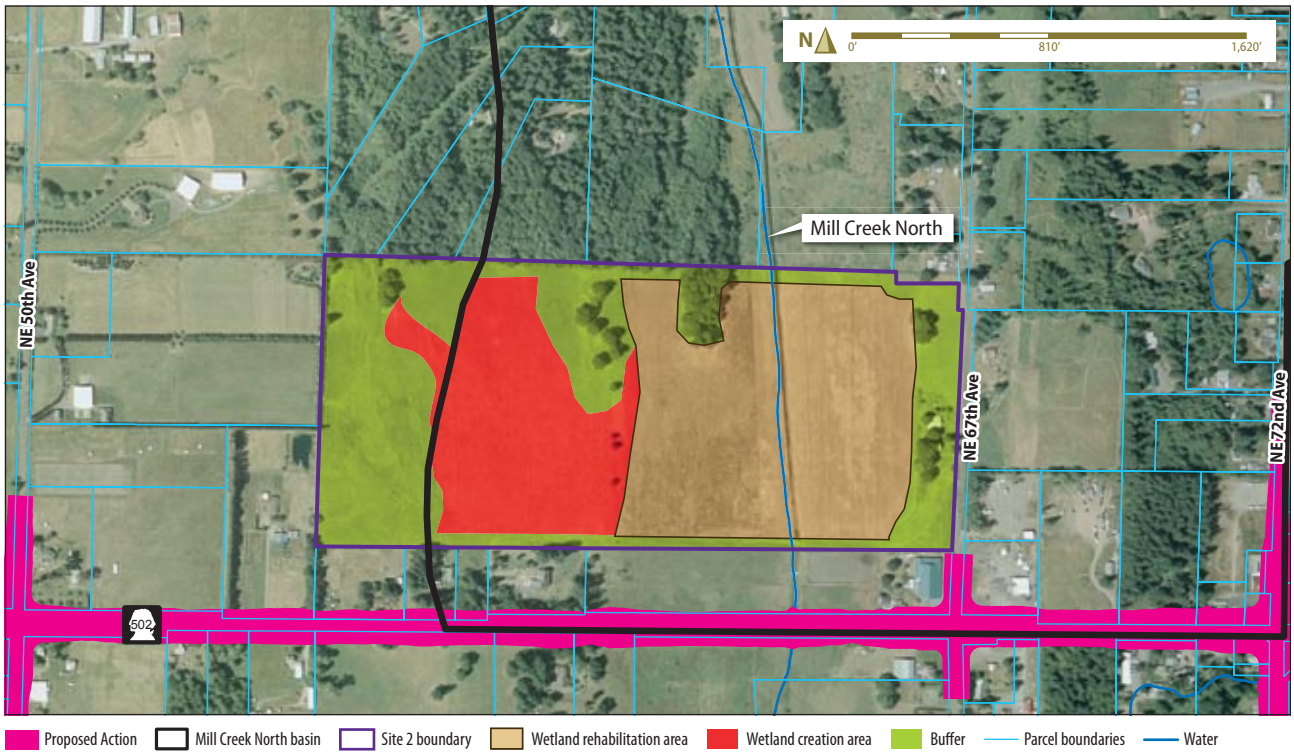

Exhibit 38: Site 2 preliminary mitigation plan

- **Provide at least 26 acres of degraded riparian headwater wetlands suitable for rehabilitation of stream-connected wetlands and at least six acres suitable for creation of stream-connected wetlands plus buffer area for these wetlands, or another combination of rehabilitation and creation area that meets the federal, state, and local wetland requirement for the impacts of the Proposed Action.**

  Site 2 provides 27 acres of wetland rehabilitation and well over the six acres of wetland creation that would be required, plus area for the buffers required by federal, state, and local agencies for Category I wetlands (Exhibit 38). Therefore, this site meets the required acreage for wetland rehabilitation and creation and would provide the needed buffers around these areas.

- **Provide in-kind similar function to the impacted riverine Category I wetlands. Mitigation for Category I wetlands must exhibit wetlands of sufficient size, in the appropriate landscape position, and hydrogeomorphic classification to provide water quality, hydrologic function, and wildlife habitat functions. The site must be directly connected to Mill Creek North or its floodplain to provide in-kind functions.**

  The wetlands identified for rehabilitation within Site 2 are located within the floodplain and are connected to Mill Creek North. Currently, they are in degraded condition, so they fail to provide the

full benefits of Category I wetlands in their existing state. However, if appropriately rehabilitated, these wetlands could provide the water quality, hydrologic functions, and wildlife habitat that characterize properly functioning, high quality Category I wetlands. Similarly, the wetlands that would be created in Site 2 would connect to the rehabilitated wetlands and Mill Creek North, and they could also be designed to provide Category I wetland functions. Therefore, Site 2 meets the basic site requirement for providing similar in-kind Category I wetland functions.

- **Provide the opportunity for creation or rehabilitation of critical fish habitat to mitigate impacts of the Proposed Action on designated critical fish habitat.**

  Mill Creek North runs through Site 2. The stream banks of the creek are degraded through this area, and the creek has been straightened and ditched for agricultural purposes, reducing the quality of fish habitat and stranding fish after high water. This site presents an opportunity for rehabilitation of fish habitat through stream enhancement projects such as riparian plantings and creating stream meanders. Therefore Site 2 meets the requirement to provide the opportunity for mitigation of critical fish habitat.

8.6.3 Summary

As demonstrated in Sections 8.6.1 and 8.6.2 and summarized in Exhibit 36, both Site 1 and Site 2 meet the basic site requirements, and therefore both meet the mitigation site purpose and need, and are feasible options as a mitigation site.

8.7 Evaluation criteria – test for prudence

Since both Site 1 and Site 2 meet the basic site requirements to address the mitigation site purpose and need, both sites were examined further to determine whether or not each is a reasonable alternative that can realistically be implemented. The evaluation criteria that test each of the sites for prudence include:

- Avoids residential or commercial displacements.
- Avoids disruption to community connectivity.
- Number of parcels needed for full or partial acquisition. Generally, acquisitions of large areas are most feasible when there are fewer parcels (and thus fewer acquisitions) required.
- Owners of the parcel(s) are willing to sell the needed portion of their property. Washington State Department of Transportation only acquires mitigation land from property owners willing to sell, unless it has no alternative.

- The ratio of total acquisition area to wetland rehabilitation and creation area. The shape of the mitigation site is driven by a variety of features (topography, soil types, presence of oak woodlands, parcel boundaries, and location of homes). Linear sites will require more buffer area, and thus require the acquisition of a greater number of total acres in comparison with a mitigation site than minimizes "edges" and thus minimizes the amount of land are that must be purchased for buffer area.
- Level of construction, maintenance or operational costs associated with using the property as a mitigation site. For example, rehabilitation of an area that requires little excavation is relatively simple, low cost, and requires significantly less intensive establishment and maintenance to be a successful mitigation site, compared with creation efforts that can require extensive and costly excavation efforts and more intensive site establishment.

The results of the prudence test are summarized in Exhibit 39, and discussed in Sections 8.7.1 and 8.7.2.

Exhibit 39: Summary of test for prudence

Test for prudence evaluation criteria	Site 1	Site 2
How many residential or commercial displacements will the site require?	3	1 (unoccupied)
Level of disruption to community connectivity?	Medium	Low
Number of parcels needed for full or partial acquisition?	4 full, 10 partial	1 full, 0 partial
Are owners willing to sell the needed portions of their parcels?	Unknown	Yes
Total acres in Mill Creek North basin to be acquired?	65.9	56.1
Acres to be used for wetland rehabilitation and creation?	32.9	41.3
Ratio of wetland rehabilitation and creation area to total acquisition area?	1:2	1:1.4
Level of construction, maintenance, or operational costs?	Above normal	Normal

8.7.1 Evaluation of Site 1

- **Avoids the need for residential or commercial displacements.**

  The area proposed as Site 1 has been selected to avoid residential or commercial displacements to the extent possible; however, in order to achieve the needed acreage for wetland rehabilitation and creation, three residential displacements are unavoidable, which equates to the displacement of approximately nine people, based on an average household size of 3.0 persons.

- **Avoids disruption to community connectivity.**

  As noted above, three residences would have to be removed to use Site 1. These displacements could constitute a disruption to the community and affect community cohesion. If Site 1 were used as the

mitigation site, fencing would be placed around the perimeter of the site to protect the buffer, wetland rehabilitation, and wetland creation areas. Construction of a fence around this extensive site would potentially introduce a new barrier between adjacent land owners, which could potentially disrupt informal interactions among them.

- **Number of parcels needed for full or partial acquisition. Generally, acquisitions of large areas are most feasible when there are fewer parcels (and thus fewer acquisitions) required.**

  Site 1 is composed of portions of 14 tax lots. Four of these would need to be full acquisitions, and the remaining 10 could likely be acquisitions of conservation easements over a portion of parcels if the property owners were willing. This is a large number of real estate acquisitions that all must successfully take place in order for this site to be a viable alternative. Although the acquisition cost for Site 1 is unknown, it is likely that it would be less cost-effective than a site comprised of fewer parcels. If any one of the sites were not available for acquisition, Washington State Department of Transportation would not be able to provide the total required wetland mitigation acreage. Therefore, because of the high risk of successfully closing on all of these real estate transactions and the difficulty associated with multiple full and partial acquisitions, this site may not be a reasonable alternative for consideration.

- **Owners of the parcel(s) are willing to sell the needed portion of their property. Washington State Department of Transportation only acquires mitigation land from property owners willing to sell, unless it has no alternative.**

  It is unknown whether any of the owners of the 14 tax lots that comprise Site 1 would be willing to sell the needed portions to Washington State Department of Transportation for use as a mitigation site. To the best of Washington State Department of Transportation's knowledge, none of the properties were listed for sale at the time of site identification. Washington State Department of Transportation avoids condemnation of property for mitigation activities, so it would be critical that all property owners be willing to sell the needed areas in order for Site 1 to be considered as a viable mitigation site. The uncertainty of willing sellers, especially those with residential displacements, increases the risk associated with Washington State Department of Transportation's ability to successfully purchase all of the needed parcels and conservation easements to implement a mitigation site on Site 1.

- **The ratio of wetland rehabilitation and creation area to total acquisition area. The shape of the mitigation site is driven by a variety of features (topography, soil types, presence of oak woodlands, parcel boundaries, and location of homes). Linear sites will require more buffer area, and thus require the acquisition of a greater number of total acres in comparison with a mitigation site than minimizes "edges" and thus minimizes the amount of land are that must be purchased for buffer area.**

  The shape of Site 1 is a fairly linear as it follows Mill Creek North with added areas for wetland creation. The shape of this site is driven by the shape and width of the floodplain, the topography, the presence of oak woodlands on both sides of the creek, and the presence of homes scattered on the many parcels that comprise the site, leading to this unusually shaped mitigation site. Because Site 1 has a substantial amount of "edge," more buffer area must be included in the site in order to meet buffer requirements. This means that in order to acquire the 33 acres if rehabilitation and creation area for Site 1, a total of 66 acres must be acquired, a ratio of approximately 1:2. In the prudence test, this high ratio of acquisition area to usable area might constitute an "unusual factor."

- **Level of construction, maintenance or operational costs associated with using the property as a mitigation site. For example, rehabilitation of an area that requires little excavation is relatively simple, low cost, and requires significantly less intensive establishment and maintenance to be a successful mitigation site, compared with creation efforts that can require extensive and costly excavation efforts and more intensive site establishment.**

  Construction of Site 1 as a wetland mitigation site would not require extensive excavation, and therefore construction costs are expected to be fairly standard for a large mitigation site. However, Site 1 could potentially have elevated establishment, maintenance and operational costs for several reasons. Site 1 would have a large number of neighboring property owners. This would necessitate maintaining many access points. The higher number of neighbors could also potentially lead to increased costs for enforcement of protection of the wetland areas – including a greater need for inspections, a higher risk of encroachments, and so forth. Washington State Department of Transportation must report monitoring data for 10 years following establishment of the mitigation site, and so enforcement and maintenance of the protection measures, such as fencing, would be critical to ensure that the mitigation site operates as designed.

Because Site 1 would cause social impacts through residential displacements and disruption to community connectivity; would result in a high risk acquisition package; would not likely be a cost-effective purchase due to the large number of parcels and unusual shape configuration; and could potentially have high maintenance and operation costs, it is therefore concluded that Site 1 is not a prudent alternative as a mitigation site.

8.7.2 Evaluation of Site 2

- **Avoids the need for residential or commercial displacements.**

  Site 2 includes a single residential structure which would likely have to be removed, so one residential displacement would occur. However, it should be noted that the house is now owned by Washington State Department of Transportation and is unoccupied by any residents.

- **Avoids disruption to community connectivity.**

  As noted above, because the house is unoccupied no one would have to be moved to use this property as a mitigation site, limiting the disruption to the community. Use of Site 2 as a mitigation site would require fencing around the perimeter of the site to protect the buffer, wetland rehabilitation, and wetland creation areas. This parcel already has a fence around its perimeter that separates it from adjoining properties, so use of the existing fence or construction of a new fence would not change connectivity in the rural community.

- **Number of parcels needed for full or partial acquisition. Generally, acquisitions of large areas are most feasible when there are fewer parcels (and thus fewer acquisitions) required.**

  Site 2 is composed of a single 68-acre parcel, so it only involves one full acquisition of a single property, making it a very reasonable mitigation alternative for successful acquisition.

- **Owners of the parcel(s) are willing to sell the needed portion of their property. Washington State Department of Transportation only acquires mitigation land from property owners willing to sell, unless it has no alternative.**

  The owner of the single parcel that comprises Site 2 had the property listed for sale at the time of site identification, indicating a willingness to sell the land, so Washington State Department of Transportation took advantage of the opportunity to acquire this prudent property as a mitigation site.

- **The ratio of wetland rehabilitation and creation area to total acquisition area. The shape of the mitigation site is driven by a variety of features (topography, soil types, presence of oak woodlands, parcel boundaries, and location of homes). Linear sites will require more buffer area, and thus require the acquisition of a greater number of total acres in comparison with a mitigation site than minimizes "edges" and thus minimizes the amount of land are that must be purchased for buffer area.**

  While this site is not a circle, which would minimize the site perimeter and therefore the amount of buffer area needed to the greatest extent possible, the regular shape of this mitigation site does minimize the area of land acquired for providing buffers. This parcel is extremely unusual in that it offers more than enough mitigation area to meet the needs of the Proposed Action. Although 14 acres of Site 2 are located within the adjoining basin, this area would also be used for mitigation in that basin and does not detract from the overall acquisition efficiency and cost-effectiveness of the site. Of the 56 acres that would be acquired within the Mill Creek North basin, 41 acres would be used for wetland rehabilitation and creation, so for every one acre that would be used for rehabilitation and creation, only approximately 1.4 total acres would need to be acquired, resulting in a ratio of approximately 1:1.4.

  Site 2 does include approximately five acres which would not be used for wetland rehabilitation or creation. This area of the site, located in the center of the northern property boundary, contains a mature and intact stand of Oregon White Oak, a globally endangered plant community as well as several large, but isolated oaks. The excavated wetland creation area would be designed so as not to disturb the critical rooting zone of these oaks. While the area around the oaks would not be included in the wetland creation or rehabilitation area, it would be part of the buffer for the wetlands, and the area around the isolated oaks would be replanted as an oak woodland community. The presence of this rare vegetation community would add to the overall richness of this mitigation site.

- **Level of construction, maintenance or operational costs associated with using the property as a mitigation site. For example, rehabilitation of an area that requires little excavation is relatively simple, low cost, and requires significantly less intensive establishment and maintenance to be a successful mitigation site, compared with creation efforts that can require extensive and costly excavation efforts and more intensive site establishment.**

Construction of Site 2 as a wetland mitigation site would not require extensive excavation, and therefore construction costs would be expected to be fairly standard for a site of this size. Ongoing establishment and maintenance costs are also expected to be fairly standard as there are no unusual site characteristics that would cause these costs to be elevated. The site is located directly adjacent to NE 67th Avenue, facilitating easy site access, and the property is already fenced, so new encroachments from the few neighboring property owners would not be expected.

Site 2 would result in only one residential displacement of an unoccupied structure, would not introduce a new disruption to community connectivity, presented a streamlined acquisition process of purchasing a single property from a willing seller, and would result in a cost-effective mitigation site, it is therefore concluded that Site 2 would be a prudent alternative as a mitigation site.

8.8 Use of Section 4(f) property

Historic properties on Sites 1 and 2 were identified in order to determine whether any Section 4(f) properties are located within the boundaries of these sites.

8.8.1 Historic properties in Site 1

There are only two structures within the boundaries of Site 1 that are greater than 50 years in age and could therefore potentially be considered historic properties. These two homes would not be eligible for listing on the National Register of Historic Places because both homes have been significantly altered from their original form, and therefore the architectural integrity of these homes has been diminished. Therefore, there are no Section 4(f) properties located within Site 1, and Site 1 is an avoidance alternative.

8.8.2 Historic properties in Site 2

The J.B. Williams house is described in detail in Section 3.2.3 of this report. As described there, the house on Site 2 is the J.B. Williams house, which has been determined to be eligible for listing on the National Register of Historic Places, so it is considered a Section 4(f) property. The J.B. Williams House would likely have to be removed in order to use Site 2 as a mitigation site, and therefore Site 2 would not be considered an avoidance alternative.

8.8.3 Value of J.B. Williams house as a Section 4(f) property

As noted earlier in Section 8.2, and as described in the Federal Register comments to the updated Section 4(f) regulations, it is appropriate to consider the value of a Section 4(f) property when weighing the prudence of using a Section 4(f) property against the consequences and

issues associated with using an avoidance alternative. The value of the J.B. Williams house could be considered questionable for the following reasons:

1. The house is not in good overall condition. It has been in disrepair for many years and may not be structurally sound, so it is unknown whether or not this historic home could actually be retained or moved to an alternate location as a habitable, safe structure.
2. The house does not currently have a septic system that meets Clark County standards and would have to have one installed in order to be considered habitable so that Washington State Department of Transportation could sell the house.
3. The R-20 zoning on this parcel requires a minimum parcel size of 20 acres. Clark County will not approve a substandard lot which is required to carve out the one to two acre house area. If the house were sold, it would have to be sold as part of a 20-acre parcel with a conservation easement over nearly the entire property (except approximately one to two acres for the house area), so that Washington State Department of Transportation could still use most of the 20-acre parcel as part of the mitigation site. It is unlikely that a purchaser would be willing to pay taxes on the entire 20-acre site. If the site was sold, there would be no way to ensure that the house would not be removed by the new owner.
4. If the J.B. Williams house was retained under Washington State Department of Transportation's ownership and Site 2 was modified to provide a buffer around the site, the house would have to be fenced off to reduce the agency's liability. Over time, this home, which is already in poor condition, would fall further into disrepair, which would negate the purpose of protecting historic resources under Section 4(f).
5. Given its diminished integrity and low-level of local historical significance, the loss of the J.B. Williams house can be mitigated through recordation and potentially salvaging building materials for reuse in other similar historical buildings.

Because of the questionable overall structural condition of the J.B. Williams house which may make the house uninhabitable as well as its overall state of disrepair and diminished integrity, the J.B. Williams house, therefore, presents a lower value Section 4(f) resource when considering the preservation purpose of the Section 4(f) statute.

8.9 Summary of prudence test and use of Section 4(f) property

The key differences between the two sites in this test and in their use of Section 4(f) property are summarized in Exhibit 39 and compared below:

KEY POINT

NUMBER OF PARCELS REQUIRED

Site 1 would require acquisition of land from 14 parcels, while Site 2 would require acquisition of land from only one parcel.

1. **Number of parcels.** Fourteen parcels would have to be fully or partially acquired for Site 1 in comparison to the single parcel that could be purchased from a known willing seller for Site 2. Obtaining agreement from all 14 property owners whose parcels comprise Site 1 could potentially be logistically very difficult, making it an unrealistic option that carries a high level of risk. Without any one of those parcels, Site 1 would fail to meet the mitigation site purpose and need and the Build Alternative would not be able to be constructed. Site 2, by comparison, was acquired through a relatively straight forward transaction from a single property owner who already had the property listed for sale.

   The sheer magnitude of difference between 14 property owners and just one is perhaps the single largest factor in determining which of the mitigation sites is a reasonable option to pursue. Selection of Site 1 would put the Washington State Department of Transportation at a great risk of significant project delay, litigation, cost, and the possibility that the project could be stopped altogether.
2. **Cost Effectiveness.** Due to the unusual shape of Site 1, resulting in a large amount of "edge" around the site, and the large number of adjacent property owners, use of Site 1 as a mitigation site would require purchasing more acres to be used as buffer area than would be needed for Site 2. Further, the establishment and maintenance costs associated with Site 1 are expected to be substantially higher than they would be for Site 2.
3. **Displacements.** Site 1 would require the displacement of three residences, approximately nine residents. By comparison, Site 2 would only result in one residential displacement of an unoccupied home.
4. **Section 4(f) property.** Site 2 would require the use of a Section 4(f) property, whereas Site 1 is an avoidance alternative. While avoidance alternatives are generally preferred, use of Site 1 is not prudent for the reasons explained above, especially in the context of a Section 4(f) property of questionable condition and value. Therefore, in this circumstance, it is reasonable to conclude that the avoidance alternative is not the best solution.

This evaluation has demonstrated that although Site 1 is an avoidance alternative, it is not a feasible and prudent alternative for use as a

mitigation site because of the high risks associated with a mitigation site requiring a large number of acquisitions, the lower cost-effectiveness of the site, and the number of displacements that would be required. Although Site 2 would require use of the J.B. Williams house, weighing the relatively low value of the house as a Section 4(f) resource against the other severe problems associated with using Site 1 as the mitigation site, the impacts of Site 1 substantially outweigh the importance of protecting the Section 4(f) property on Site 2.

8.10 Planning to minimize harm

As described in Section 8.6.2, Site 2 provides excellent wetland and fish habitat mitigation opportunities. However, because use of this site would affect the J.B. Williams house, all possible planning must be incorporated into the Proposed Action to minimize harm to the Section 4(f) property.

As outlined in Section 5 of the Section 4(f) Evaluation, removal of the J.B. Williams house is likely under the Proposed Action; however this section presents measures to mitigate or minimize harm that would occur to the J.B. Williams house as a result of the Proposed Action. These mitigation measures are included in the memorandum of agreement signed by the Federal Highway Administration, Washington State Department of Transportation, Washington State Historic Preservation Officer, the Chinook Tribe, and the Cowlitz Indian Tribe on January 14, 2010 (see Appendix C, *Memorandum of Agreement for Historic and Archaeological Resources*, of the final environmental impact statement).

- The J.B. Williams house shall be recorded so that there is a permanent record of it's existence. Washington State Department of Transportation shall contract with a qualified archival photographer and historian to prepare photographic documentation and an historical narrative overview of the property according to the National Park Service (Historic American Buildings Survey/Historic American Engineering Record) and Level II Washington State Department of Archaeology and Historic Preservation guidelines for documenting historic properties. Washington State Department of Transportation shall ensure that the documentation of the property is completed and accepted by the Washington State Department of Archaeology and Historic Preservation (and distributed to local repositories as appropriate) prior to any demolition or alteration of the property.
- An interpretive display consisting of one to two panels of text and illustrations shall be prepared and installed at the J.B. Williams property, at the previous location of the house, facing toward the

west (the direction of the historic farmland and the new wetland mitigation site). The content of the panels shall be determined in consultation with Washington State Department of Archaeology and Historic Preservation, the Clark County Historic Preservation Commission, and the Cowlitz and Chinook Tribes.

9 Coordination

Section 4(f) requires coordination with the official(s) that have jurisdiction over each Section 4(f) property prior to approving an alternative that does not avoid Section 4(f) property (23 CFR 774.3 (c)(iv). For the SR 502 Corridor Widening Project, the only official with jurisdiction over the Section 4(f) property is the Washington State Department of Archaeology and Historic Preservation. Coordination with the Washington State Department of Archaeology and Historic Preservation, the Washington State Department of Interior, and the Advisory Council on Historic Preservation is required under 23 CFR 774.5 for a determination of a *de minimis* impact on any Section 4(f) property.

Records research was conducted at the Clark County Museum and the Fort Vancouver Library. Other research materials reviewed included historical maps and other forms of data on file at Archaeological Investigations Northwest, Inc., Department of Archaeology and Historic Preservation, and Clark County Geographic Information System.

9.1 What coordination with state and federal entities has or will occur?

As described above, records from the Washington State Department of Archaeology and Historic Preservation were reviewed for information on historic properties in the study area. The Washington State Department of Archaeology and Historic Preservation concurred that the six historic properties described in Section 3.1 are eligible for listing on the National Register of Historic Places. The Washington State Department of Archaeological and Historic Properties also concurred that one archaeological site is eligible for listing on the National Register of Historic Places. Copies of the concurrence letters are included in Appendix D, *Agency Correspondence*, of the final environmental impact statement.

Due to the adverse effects to Section 106 resources a memorandum of agreement was prepared (January 14, 2010) and is included in Appendix C, *Memorandum of Agreement for Historic and Archaeological Resources*, of the final environmental impact statement. The Washington State Department of Archaeology and Historic Preservation is a signatory to the agreement, and the Advisory Council on Historic

Preservation was invited to participate, but did not respond to the invitation.

The Washington State Department of Transportation notified the Washington State Department of Archaeology and Historic Preservation of its intent to make a *de minimis* finding for the Blair farmstead and Smith farmstead based on the No Adverse Effect determination that the Washington State Department of Archaeology and Historic Preservation concurred on under Section 106. A copy of the letter from Washington State Department of Transportation is included in Appendix D, *Agency Correspondence*, of the final environmental impact statement.

9.2 What coordination with local historic societies has or will occur?

As described above, records from the Clark County Museum and Fort Vancouver Library were reviewed for information on historic properties in the study area. These parties, the Clark County Historic Preservation Commission, and the City of Battle Ground Historical Advisory Committee received copies of the draft environmental impact statement and draft Section 4(f) evaluation for comment. They will also receive copies of the final environmental impact statement and final Section 4(f) evaluation. In addition, Washington State Department of Transportation invited the local historical societies to provide input on potential mitigation measures and met with the Clark County Historic Preservation Commission to discuss these measures. Documentation of coordination with the Clark County Historic Preservation Commission is included in Appendix D, *Agency Correspondence*, of the final environmental impact statement.

10 Determination

As demonstrated in this Section 4(f) evaluation, the Pink On-Corridor Alternative, which is the Proposed Action, causes the least overall harm through the incorporation of all possible planning measures to minimize harm, while also meeting the purpose and need for the project. There is no feasible and prudent alternative to the use of the J.B. Williams house and the Thomas farmstead.

The Proposed Action is a hybrid of the other on-corridor alternatives (Yellow, Purple, White, Red, and Orange) and the Transportation System Management/Transportation Demand Alternative that blends the best aspects of these alternatives, with its design carefully minimizing impacts to Section 4(f) property and those resources not protected by Section 4(f) to the extent possible, while still addressing the purpose and need of the project. The following design parameters

are proposed as part of the Proposed Action in order to incorporate all possible planning to minimize harm or mitigate for adverse impacts to Section 4(f) property:

- The right of way was narrowed near the Bonneville Power Administration transmission line to avoid relocation or replacement of the tower located west of NE 41st Court.
- Right of way acquisition on the north and east edges of the parcel containing the Ed Allen/Wilson Heasley house has been limited, thus avoiding an impact to the historic house and minimizing removal of vegetation between the house and the roadway.
- Washington State Department of Transportation would implement mitigation measures for the unavoidable impacts to the J.B. Williams house and the Thomas farmstead through the memorandum of agreement signed with the Washington State Historic Preservation Officer on January 14, 2010, in compliance with Section 106 of the National Historic Preservation Act (see Appendix C, *Memorandum of Agreement for Historic and Archaeological Resources*, of the final environmental impact statement). The mitigation measures are listed in Section 5.2.5.
- The roadway was shifted south to avoid the house and other structures on the Blair farmstead and to minimize removal of vegetation between the structures and the roadway.
- Steeper slopes (4 to 1 dimension) can be utilized for the roadside ditch adjacent to the Blair farmstead in order to reduce the amount of vegetation removal required and minimizing changes to the setting of the historic farmstead.
- The right of way was narrowed near the Smith farmstead to avoid removal or relocation of the farmstead structures.

11 References

Archaeological Investigations Northwest, Inc. (AINW). 2008. *Cultural Resource Survey for the SR 502 Corridor Widening Project*. April 2008.

Archaeological Investigations Northwest, Inc. (AINW). 2009. *Cultural Resource Survey and Archaeological Site Evaluations for the SR 502 Corridor Widening Project.* April 2009/

Parsons Brinckerhoff. 2007. *First-Level Alternatives Screening Memorandum for the SR 502 Corridor Widening Project*. July 2007.

Curtis, John Obed, 1979. *Moving Historic Buildings.* US Department of the Interior, Heritage Conservation and Recreation Service.

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